

POPULAR Computing WEEKLY

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13-19 November 1986

Vol 5 No 46

Amstrad axes hard disc guarantee

Full story on page 4

**SPECIAL
supplement**

THE PERIPHERALS BUYERS' GUIDE

The best mice, monitors,
modems and printers
around - starts page 31



FEATURES

Acorn's Master Compact
(below) reviewed, plus
Firebird's Sentinel and
Ariola's Bard's Tale in colour



With monitor, data c £100 of software yo (Until mummy cate



With the Amstrad 464 home computer the fun starts as soon as you get it home.

Because unlike many other home computers the 464 comes complete with its own green screen or full colour monitor.

It also comes with a convenient built-in daisyroller.

And you get £100 worth of software with games like *Harrier Attack* and *Satan's Maze*. Not to mention *Oh Mummy*.

64K of RAM



means you have plenty of memory to play with. And there are over 200 Amstrad games you can play, many exclusive to Amstrad.

But games are only half the fun on the 464.

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To help you make the most of your 464, you can join the Amstrad User Club.

And there are lots of books and magazines devoted to it as well.

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CBM-64/128

Ice Hockey
Battling Rubber
Golf
Water Sports



Cass £7.95

Disc £9.95

HARDWARE ▶



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The latest Acorn machine to be based on BBC technology is aimed at the mass market. Duncan Evans assesses its chances.

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ABC

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Amstrad axe for warranty

AMSTRAD is taking steps to minimise its liability for any problems users have with its hard disc PCs. A recent circular sent out to PC dealers says that customers are being "strongly advised" to purchase a maintenance contract along with the PC, and states that: "in the event that units are sold without professional (and approved) service cover neither Amstrad nor the distributors can be held liable for the warranty of the hard disc mechanism".

According to a spokesman this means that the user's only contact is against the dealer, and that the dealer cannot claim against Amstrad. Unless they can demonstrate that the machines have

been properly handled."

The end user's position is further complicated by Amstrad's decision to place a warning on both the carton and the machine. This describes a maintenance contract as "absolutely essential" and states that "transportation and installation of this system should be carried out by qualified personnel only".

The circular also stresses that it is important "that the retailer or dealer explains the situation to the customer prior to the purchase so that a customer who later encounters difficulties cannot say he was not aware of the position when he bought the machine".

So, if you buy a machine without a maintenance contract and it goes wrong, you will have no warranty.

David Finch, legal adviser to the Consumers Association, felt that there was nothing intrinsically wrong with Amstrad's warnings, and even welcomed the fact that the company was stressing

maintenance. A maintenance contract would be helpful to a customer trying to prove that a machine was defective when bought, but it's not legally essential, and if the machine was faulty when sold you have recourse against the dealer.

That said, anyone buying an Amstrad hard disc machine would be well advised either to take out a maintenance contract with it or to plump for a third party hard disc unit.

■ Amstrad is still insisting its PCs don't overheat, but is now fitting a fan as standard with its hard disc machines. It can be bought as an extra for the floppy versions for £19.95.

"The fitting of this fan is a waste of money," commented Alan Sugar, "but it will keep some people happy. I recommend that operators switch the fan off if it saves an electricity and won't make any difference to the operation of the machine."



the importance of maintenance. He did, however, feel it was important that "putting right" problems was not clouded by being classified as

Smiths to take range of Mastertronic titles

FOLLOWING the controversy over the sudden drop in Mastertronic's presence on the desktop chart last *Popular Computing Weekly*, Number 226, the budget software company has announced that a selection from its range is now being taken by W H Smith.

It was W H Smith's inclusion on the desktop panel a month ago which led to Mas-

tertronic's dominance of the chart disappearing dramatically. At that time, W H Smith did not stock any Mastertronic titles.

Alan Sharratt of Mastertronic would only say that he "was delighted that our products are now in W H Smith". It is not clear whether it was the retailer or Mastertronic which made the first move towards including the titles.



Atari Show launch for new 7800 games console

ATARI is to launch its new games console, the 7800, at the Atari Christmas Show later this month. The machine will cost £99.95, slightly higher than predicted but still under its Sega and Nintendo

rivals, and although it will run more spectacular games than its predecessor, the 2600, it will not all the newer cartridges.

It is expected in the shops before Christmas.

Zenith cuts prices and aims for Amstrad

PC compatible manufacturer Zenith Data Systems is going for Amstrad's popular, low-price averaging price reductions with the launch of a new machine based on the Intel 80286 chip.

Zenith isn't recommending new retail prices for its PCs, but is instead offering (and publicising) dealer prices comparable to Amstrad's. Assuming dealers' mark-ups will be comparable to those on the Amstrad PC this will

mean that floppy-based Zeniths will be rather more expensive than Amstrads, but that hard disc models will be marginally cheaper.

Zenith is currently looking for 100 new dealers to participate in what it terms "Operation Sugar", and is campaigning on the slogan "Isn't it time you started a Sugar-free diet?" The high-end 80286 machine is in the same bracket as Compaq's Desk-PC 386, and is two steps up from the 8086 chip used in the Amstrad PC. Amstrad is saying it isn't currently interested in machines based on the 80286 or 80386 chips.

Commodore profit up again

COMMODORE turned in a profit for the second quarter in succession last week, showing post tax profits of \$3.7 million (about £2.4 million) on turnover of \$170 million (£117 million) for the three months to September 30.

The turnover was 11 per cent up on the same period last year, when Commodore lost \$29 million. Earlier this year Commodore turned in a small pre-tax profit, but tax took this back into a small loss.

Boots drops 6128

BOOTS is to drop the monolithic version of the Amstrad 6128 from its range of

micros in response to poor sales. The company will however continue to stock the colour version of the machine. Most machines still in stock are being returned to £199 to clear.

Acorn to go for 68000?

The 68000 chip moved a little closer to widespread acceptance last week with the news that Thomson, Olivetti and Acorn are working on a "European Education Standard Microcomputer" for release next year.

The machine will run Microware's CSI-6/68000 operating system and although the project's instigators are keeping quiet about a Paul Daven of Soft Centre, Ltd. distributor of OS-9, says that it will be priced "reasonably", and that its potential market runs into millions in both schools and small businesses.

Thomson appears to be the main force behind the project, and as a French company is likely to be able to sell the machine widely in French schools. The Olivetti/Acorn input is more surprising, as Olivetti has hitherto stuck almost exclusively to the PC standard, and Acorn's plans, although wide-ranging at times, are not known to have included the 68000.

Olivetti itself has had some success in getting its PCs into educational establishments, and is currently selling Acorn's Master Compact in Italy, while Acorn has built up Olivetti's pricey M18 PC. The 68000 machine will, how-

ever, give the companies an opportunity to offer an alternative to the PC, and standardisation across the three companies should give the machine a good chance of success, provided the price is reasonable as well as "suitable".

Our man at Savoy is top of the Pops

The National Computer Games Championships, organised by MicroGen, has been won by a Popular Computing Weekly reader.

David Lufthart, 17, from Horsham, entered the championships through the application form printed in *Popular* earlier this year. Last week, he attended the grand final held at the Savoy Hotel in London, competing for the title against nine other candidates. He beat the opposition comfortably, scoring over 27,000 on MicroGen's new game *Cop-Out*.

Christopher Kenny, representing the East Anglian Times, came second, scoring just over 21,000.

David's prize, apart from a trophy donated by MicroGen, was a cheque for £300.

Amstrad in education

AMSTRAD's PC received a boost last week with the announcement that Aston University had placed "large order" for the machines. Amstrad only declined to say how many, but Aston already has 120 IBM PCs and 120 Macintoshes, so the numbers are likely to be at that order.

The first batch has been delivered to lecturers, but the low price of the Amstrad makes it attractive to a wider audience. "IBM and Apple are well outside a student's reach," says Aston computer operations manager Tony Bell, "but the lowest cost Amstrad could just about be

within their budget."

City Business Systems, which is supplying Aston's PCs, claims to have already shipped several hundred of the machines into colleges and describes them as "ideal for the educational market". The field is, however, crowded. Acorn may no longer be a presence in the home market, but maintains influence in education, while Atari is beginning to take advantage of higher education's interest in the 68000 chip.

Because of its high price and low price the ST will be a particularly dangerous rival here.

Software Hotlines

Melbourne House is obviously looking to capture the disposable income fans like Christmas — it's range includes *Judge Dredd* and *KrustyMcKrusty*, both of which feature well-estimated characters running frantically along a street level background. *Judge Dredd* (impossible Mission mode) *Jet Set Willy* is a race against time to prevent crime in Megacity One, while in *KrustyMcKrusty*, plausible Mission mode *Marital Anal* you are trying to escape being turned into an animal.

Melbourne House is also responsible for *Dasco's Bit*, a multi-screened arcade, about 1cm to bits, if it moves fast it, game. Others in **Melbourne's** repertoire this Christmas include, of course, *For a* and *Acorn*, but not necessarily *Dodgy Dealers* any more, we understand.

Apparently, the condensed version of the *Lover-James* (of *Maryland* and *Samuel* lines) *romantic* creation has gone AWOL.

Bill, *Dodgy Dealers* should make it for January, as should *Inspector Gadget*, from the cartoon strip, arriving in our Christmas Christmas (lecture about, *Thriller*, *Thriller*, *Thriller*, *Judge Dredd*, and *Gadget* are all definite for the Commodore, followed by Spectrum conversions.

Who wants the latest news on the Beyond-the-End-of-the-world's saga? Well, the high command at **Telecom-**



Inspector Gadget

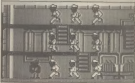
soft has come up with a new slogan for the Star Trek: "Software worth waiting for." Good job, really.

CRL goes back to the end of this month with *Judge Michael* and *Jason* (formerly's *Murder of Miami*, a mystery/adventure based on David Wheeler's book of the same name. The game is set in the 1930s and, *Crackers* and *Tobacco* being unavailable owing to a not born yet situation, you play detective Kershner, called in to investigate an alleged suicide.

It all sounds a little boring, but back then the Miami was new and low, but don't let on it — **CRL** plans a follow-up called *Murder of Miami* to 1981 *Murder of Miami* is £7.95, and available on Spectrum, MS and Amstrad.

Several titles from **CRL** seems to revolve around a *Buffet* sect which, according to the manual, "is really nice and serene and don't stop on the area approach, chop you up with large two-edged swords. Your task of *Samurai* and *Palace* has to go into the temple and save them out.

CRL claims it's "an exciting strategy game" but we have our doubts about the strategy bit. Out on the Spectrum next week, £5.95.



Savoy 87

CAPTURED

Commodore
£9.95 Tape **£14.95** Disk
Amiga version & Amstrad version coming soon!



ACTION

Created by Kevin Williams for American Action AG,
Box 10000, 400 44 Street, London, (044) 40-00 00 00.

Microdiskette
From various magazines, books, tapes

Souped-up Gem plus comms for Amstrad PC

DIGITAL Research has announced a range of new packages running under Gem, its graphics-based operating environment.

Many of the products are tailored for the new Amstrad PC1612, and all of them can be added to the 'reasons to buy' list of anyone looking at this latest IBM clone.

Called Gem XMI, the enhancement acts in similar fashion to Apple's Switcher on the Macintosh, allowing you to load several applications into the machine and switch quickly and easily between them.

Gem XMI provides a cut and paste facility between all applications, whether they are

Gem-based or running under MS-DOS or PC-DOS.

DRI recommends a minimum hardware system of 512K RAM, and a hard disc, or XMI disc. Gem XMI is currently being shipped as bundled software with some hardware systems, but will be available retail in January for £99.95, excluding VAT.

The second product is an Amstrad-specific communications package, called Gem Comm, which reads like a wish-list of comms software features.

It runs under Gem using the 'WHF' environment to the full, supports just about every kind of transmission rate and data type, handles UK and



Gem XMI plus applications

Hayes protocols with equal ease, and costs £99.95 including VAT.

The third product is another upgrade, this time to Gem Draw.

The improvements include the ability to treat groups of elements as single structures, building up a complex design a stage at a time, the ability to flip elements horizontally and vertically, and to perform 90-degree rotations, together with enhanced copying, re-

sizing and alignment.

Gem Draw Plus also has added type bars and styles.

An Amstrad-specific package will be available from January priced at £99.95 including VAT. Versions for other IBM and compatible systems will cost £199.95 excluding VAT, and will include the full Gem systems software, Gem Desktop (both of which are bundled with the Amstrad) and the Gem Draw Business Library.

Palace seeks staff for major expansion

PALACE Software, until now thought of as one of the more shy and retiring of the games software houses, has expansion plans and is looking for programmers and designers.

According to Palace managing director Peter Stone there's no real upper limit to the number of people the company will be recruiting, not because Palace has an infinite quantity of money but "because it's unlikely that we

will be so inundated that an upper limit will be reached."

Part of the expansion program will involve increased work on the IBM and ST, which Stone sees as the machines of the future, and he feels they will require a different kind of program. "In the future, games are played by people in their 20s and 30s," he says, "and things will begin to change in Europe as well."

The market will need a more thoughtful type of game, "flight simulators, adventure type games, mind games or puzzle games". At the moment he sees the ST as the key to this, although the Amstrad PC is likely to follow shortly.

Peter's cousin Stephen, Commodore and CPC games man, however, breathes again, although he sees their market eventually disappearing as he feels they could be around for as long as another five years, and they'll continue to get software support.

Amstrad defies yen and cuts the cost of its 3 inch discs

AMSTRAD has reduced the price of its CFC blank discs to £2.99 in what is described as a "long predicted" move. The company says that it's previously been impossible to reduce the price "due to a general shortage of discs plus high production and freight costs", but now claims to have overcome these problems.

Most of the company's 3-inch discs are, however, made in Japan, and the strength of the yen was recently cited by Amstrad as a prime reason for a £2 per disc price rise on the PC. Quicker on the Japanese an Amstrad spokeswoman said the company had been able to cut the prices by "value sourcing" but refused to be shown further.

It is, however, unlikely that a similar breakthrough will occur as the Amstrad PC's price while demand remains high,

Footnotes

CPM/AT Presentations of Our Time Volume 8, Number 18. At last week's Amstrad in the City seminar AGT marketing director David Randall opened his mouth and put a foot in it with "we are in fact a speaking distributor."

Looking it to the audience this time is still very well, but there is a danger that people will start associating networks with fastest works...

At the same seminar supervisor C/IMP's programme showed how fast things can move in the computer industry. At 2pm the introduction was presented by Richard Goss, managing director, C/IMP Computers, but by 4.30pm Robin Adams, managing director, C/IMP Computers, was able to bring proceedings to a close.

The proceedings had initially been held in the Bay or Room of Whitbread's brewery - this was quite as the tackiest piece of growing of the year, provided nobody told The God Alan what brewers do with sugar...



Stone: Moving up

Amstrad bids for stardom in the City

AMSTRAD'S fulsome reaction to recent suggestions that its PC could be unreliable speaks volumes about the company's plans for the machine. In order to become a world force in business computing, Amstrad has to sell large volumes to big companies, to the corporate market, and en-

processor. The PC runs word processing software, but it's not really a word processor."

Miller may be privy to some information that shows that the 286 processor is more suited to word processing than the 80386, but the fact of the matter is that both the PCW and the PC are computers, and Amstrad can't sustain the argument that they're not for long.

But while the PC is the logical successor to the PCW in the small business market Amstrad will have to work if it's to break through into big business, and although Amstrad itself didn't organize last week's seminar this is basically what it was all about.

The speakers were keen to scotch any stories of unreliability. David Randall, marketing director of ADT, said that his company had tested the PC with "a wide range of products, and found no difficulties with either overheating or the power supply."

But he did testify solemnly that the rating of the PC's power supply could be too low for some tasks. Installing a Western Digital hard disk in exchange for one of the machine's floppies, for example, would result in a 40 per cent reduction in power drive, and this makes it "ideal for use in the Amstrad."

Similarly he extolled the virtues of high capacity hard drives. "They have their own independent power supplies, so the power limitations on the Amstrad are not a problem."

Randall claims to have tested products in conditions "in excess of Amstrad's rating" for the power supply without running into problems, but it's clear that Amstrad's power supply doesn't have the output of IBM's.

In the same vein Malcolm Miller pointed out that Amstrad had taken PCs and "tested them beyond normal use, and beyond what some of the press have written about," but this isn't exactly the point.

If an expansion card draws more power than is available a fuse will blow, and this will happen no matter how many cards you put in machines.

The power problem of course isn't exactly Amstrad's fault. Most IBM add-on cards will run in the PC without problems, but certain combinations draw too much power, and can cause trouble under certain circumstances.

The reason the problem arises is because the original IBM had a large ship can drawing a fairly substantial amount of power and had card slots designed to cope with similarly chunky expansion cards. Amstrad's systems are technologically more precise, and both the power supply and the card slots are rated lower than those on the IBM. So an expansion combination that pushes the IBM PC to its limit will almost certainly blow the Amstrad's fuse.

If you view this as Amstrad paying for IBM's deficiencies you should start to understand the former's indignation on the subject. Amstrad also has the right to be slight-

ly mollified by the way the matter has been blown up. Technically all expansion cards will work with the Amstrad, and only a few, relatively old designs will cause problems, usually when several are being run together.

IBM must have got off lightly in the compatibility stakes partly because it set the standard in the first place, and since then it has launched four machines (the Junior, PC Portable, AT and Convertible) which aren't fully compatible with the PC.

Amstrad's record is short, but so far better, and the company has some hopes of supplanting IBM. "The standard is going to be without for many years," says Miller.

"Some people have termed it the Amstrad standard. Maybe IBM will leave it alone and concentrate on other areas."

He didn't specify who had termed it the Amstrad standard, and at the moment is unlikely to convince many people that IBM is on the point of walking away from the PC mass market, but given the power of the opposition his uncharacteristic use of the word "maybe" is understandable. So far Amstrad has had to cope with nasty rumors and a delirious share price, but what would happen if IBM really started to get worried?



Miller: A twisted defence

less the company can contain the whispering campaign about the PC it won't be able to persuade the big buyers to bite.

Whether it succeeds or fails Amstrad's commitment to the corporate market has implications for its other machines. As the company concentrates on the business machines the home machines are liable to suffer from neglect, and the PC's launch inevitably splits trouble for the PCW.

The price rise on the PC will help differentiate it from the PCW in the short term, and a massive advertising campaign for the latter will also help shore up sales, but the roles are still too similar for them both to survive in the long term.

Amstrad marketing manager Malcolm Miller was talking about the two last week at an Amstrad in the City seminar organized by CWP Computers. The PCW, he said, "is there as a word





More power from Moneywise

At-Data's **Moneywise** Software, which runs on **PP Macintosh**, has released a new version of the program for the **Amiga** CD 1612. The program is called **Moneypower** and costs £99. It retains all the original product's features and also contains extras, including a fully prepared just-in-time model with graphs and projected profits and loss.

Details from Moneywise Software, 888 London Road, North Queens, Surrey GU3 9BZ. Tel 01-337 0883.

Price cut on Amiga spreadsheet

GRAPHIC has cut the price of **Logos**, its integrated spreadsheet and time planning package, from £249 to £149 to coincide with Commodore's current special offer on the **Amiga**. "We feel that Com-

modore has made the right move and we going to sell a lot more machines with this price cut," says **Graphic** marketing manager Ian McCulloch. "With **Logos** at £149 we feel now we can become the most important spreadsheet on the **Amiga**."

Details from **Graphic**, 66 Sarnbury Road, Oxford OX2 8PZ. Tel 0865 216281.

Pace launches smarter modem

PACE has introduced **Series Four**, a new range of intelligent data modems. The modems are designed to cater for data transmission at 1200 and 2400 baud full duplex, but also include V.21/V.22 for use with 300/1200 and 1200/75 baud **Serial** rates. The modems have auto dial and auto answer, plus full speed buffering, burst rate detect, **Modem** and a 32 character **LED**.

They also have a printer port fitted as standard, allowing incoming messages to be

removed and dumped to a printer even if the modem is being used independently of a host computer. The basic model is £385, while adding 1200/1200 brings the price up to £439 and 2400/2400 to £519.

Details from **Pace Micro Technology**, Jupiter View, Allerton Road, Garsfield RD19 7AG. Tel 0274 499271.

Be your own AI expert

PAL Software has produced a £69 **AI** expert systems package running under **MSDOS** and **CompuLink**. **See: PAL's** **Palmer's** based on **Intelligence**, a software package that uses artificial intelligence techniques to build expert systems, and although it's presented as a learning package allows users to develop **AI**-based expert systems.

It will support on the **IBM PC** and compatibles and **Ap-**

pet machines, and consists of two discs, a page-free manual and function key templates.

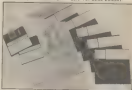
Details from **PAL Software**, PO Box 24, Oldenham House, Ashley Road, Ashford, Cheshire WA12 9TD.

Online typesetting

ELECTRONIC mail service **One-to-One** has linked up with computer bureau **Wordstream** to provide a typesetting service. Customers send raw copy to **Wordstream** via **One-to-One** with codes to indicate text, style and fonts and **Wordstream** then runs it through a typesetting machine.

Wordstream claims this system can save up to 50 per cent of typesetting costs, and guarantees to turn the copy round within 48 hours of receipt.

Details from **Wordstream**, Victoria Chambers, 16 Vale Road, Dounthorpe BH1 2JH. Tel 0932 294387.



Diary Dates

NOVEMBER

15 November

Wales and West Computer Show

Central Hotel Cardiff
Details: All types of home computer and laptop

Price: £1 seat, 50, 10000
Organiser: **Proton Exhibitions**, 0558 40007

21-23 November

The Commodore Computer Show

Round, Harrogate, London W8
Details: Hardware, software and peripherals for the **Commodore** range of computers

Price: £3 adults, £2 children, £1 discount for advance booking
Organiser: **Software Exhibitions**, 081 458 8805

23 November

5000 Show

Old Suite of the Royal Hotel/Hotel Society

Details: Show for the **Amiga** and **Family Colour Computer**
Price: £2.50 adult, £1.75 children

selection for **Amiga** hardware

Organiser: **John Pope, Middles**, 0125 56020

28-30 November

The Atari Christmas Show

New Horizons Ltd, Birmingham
Great Whitehouse, London SW1
Details: Hardware, software and peripherals for the **Atari** range of computers

Price: £3 adults, £2 children, £1 discount for advance booking
Organiser: **Software Exhibitions**, 081 458 8805

29 November

Night Computing Fair

Apex Town Hall, Bide, Wilt
Details: Local show covering wide range of subjects
Price: 50p
Organiser: **Night Computing Users Group**, 12 John Street, Bide, Wilt of Wayne PLC 071

Prices, dates and venues of shows are very low and are therefore simply added to those with the show organisers before attending. **Proton Exhibitions** always reserve strict responsibility for any alterations to show arrangements made by the organisers.

Clearly moral

The discussion on self-wiring copying devices (Apparel to Amused, Letters, October 30) is very interesting, but here's the crucial question:

A person buys a program from a firm which doesn't give permission for back-up copies to be made. The user makes a back-up for their own peace of mind, with no dishonest intent, in any offense committed?

According to you, yes. Not at all, no. There is nothing "dodgy" about it. The Copyright Act, 1909, governs what is called "fair dealing", for, amongst other things, private study, research or review. Now doing means what it says. If you're moral, you're in the clear.

Peter J. Easdale
Chichester

See this week's Ziggurat.

The Shadow replies

Apple who has heard in my Shadow Ram Access program from Syss and Parris in Popular, October 23, must be a little puzzled as to when the program actually does and how to use it.

Unfortunately, including original documentation from an exclusive two pages to two paragraphs this information situation was sorry. Here, for anyone who is interested, is a more complete program description.

Firstly, the program will run on any Atari with at least 64K. The program does access the additional bank-switched 64K at the 130000, but allows the use of Ram in the 40-60K area, normally delayed by the Basic and OS Kernal.

To use the program type in the listing as printed. But it and the program will do-verse itself. Now delete line 20 and the remaining text, connecting mainly of graphic characters, is all that is needed to use the program.

It is used in the form *20-Appl* (McKilford), source, destination, pages and can be used to move pages of memory, eg. screens in and out of the shadow Ram.

However, you must be careful not to store anything in the 52-64K area as this is I/O mapped memory used by the Atari's disk-on-chip and attempting to store is liable to crash the machine.

A P P Cawford
Penzance

Puzzled by the puzzle?

I wish to correct wrong assumptions in your Puzzle section.

In answer to Puzzle No. 233 you state that taking only one ball from any of the three boxes will show the contents of each. This is wrong. Taking a ball from box three will do this as it must contain two identical balls, and the contents of the other two boxes can then be identified.



Before buying Popular Computing Weekly, October 28, I was a normal, optimistic computer owner. Now I am angry, but still a very much optimistic computer owner. I hope this letter will go some way to restoring my hopes for the future of the computer industry.

I was horrified by the piece by Anthony J. Shupland in the Ziggurat his conclusions, that the advanced and user-friendly computer power offered by the new 16/32-bit computers will fail to attract buyers because of the admittedly sizeable software base of such micro-computing parlance as the IBM PC are nothing more than luxury.

That many "new" machines based on 8-bit technology have been launched in the past months, but to some-off such machines as the ST, Amiga and the Macintosh as "newericks" practice of persons content with unfriendly, expensive, under-powered IBM PC clones.

Like nearly all ST owners, I

The angry, but op

am disillusioned with its capabilities. It is fast, reliable, friendly, inexpensive and has a reasonably growing software base. Can any IBM machine match all these desirable traits? The Amstrad PC and other clones will be okay for a few years, but the limit to Ram is only 640K max, and will cost about 20, seriously less for potential of users. The ST, with its minimum address range of 16MB, will not have such problems until well after its useful lifespan. The list of ST-specific software now goes as well over 600 titles, far in excess of the number available for the PC in its first year. These titles are cheap, friendly, usable and do not contain any serious bugs. I can think of no ST software made available by bugs, so Mr Shupland is quite clearly a material misuser.

Now, is the Apple II/IIe and its older brother, the Mac. The OS may not catch on over time, while the old Apple II series really got attention, but do not dismiss its possi-

ble your illustration you show the effect of taking a red ball from box one, which identifies each box; however, if the ball taken from box one is white then its partner could be red or white, making identification impossible.

Alvin Parsons
Cardiff

The point about only removing one ball to determine the contents of each box, is that the ball must be retrieved from the box labelled White/Red. As each box is wrongly labelled, there must be two balls of the same colour in that box, if you pick a red ball from

Puzzle

Puzzle No. 233

"Here's a riddle!" remarked Jamie to Ben. Solving a piece of which he wrote the numbers 2, 16 and 34 on the blackboard. "Now I tell that you can't tell the next number in that series" said Jamie confidently.

Ben thought for a while, made a few calculations, scratched his head, and then declared, "I can't see any connection between them. So what's the answer?"

"Well," replied Jamie, "each of these numbers is equal to half of the sum of six digits, multiplied by the product of six digits. For example, twenty-four is half of six times eight."

Ben was unimpressed, but Jamie continued, "Now you will be able to find me

the next number in the series!"

But Ben wasn't able to. Can you?

Solution to Puzzle No. 228

Answer: The multiplication was 7220 x 6472 = 46768872. The colours of the numbers in the product was therefore R R R B B B B O.

Solution: We need to find the values of the coloured numerals, red, green, blue and yellow. We know the positions of each type of digit in the multiplication sum, so by assigning values to the variables R, G, B and Y, various possible products can be computed. There are ten million ways to do it (they consist of eight digits, each of the digits is one of the digits (colours) being used, and the left-hand digit is the same value as the 'yellow' digit.

This results in only the nine answers:

Winner of Puzzle No. 228

The winner this week is Mr J. Davies of Southfield, Kent, who will receive £10.

Rules

The closing date for Puzzle 233 is December 1st. Answers or a postcard please.

1	10	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10	10	10
6	10	10	10	10	10	10	10	10	10
7	10	10	10	10	10	10	10	10	10
8	10	10	10	10	10	10	10	10	10
9	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10

optimistic ST owner replies

tal in the American market. The Apple II has a vast software and user base in the States, making the GS quite an attractive proposition to Apple II owners wishing to upgrade. The Mac has an excellent library of software, friendly and powerful though expensive. It remains, quite intentionally, a business computer. And I challenge anyone to find any review of the Mac describing it as a toy.

The Amiga has amazing graphics and sound capabilities, which remain, as yet, unmatched by all but a handful of Electronic Arts titles. Amiga software is also much cheaper than on an IBM. Can he defend paying £400 for a wordprocessor? Multi-tasking is standard, though slow for real-time work and only limited by memory. A 68020 Amiga will have no such trouble. Commodore needs a good kick up the backside for not making enough of this masterpiece of technology.

His statement that a machine with no standard

operating system is going to be a "dead duck" conforms with the luxury of his whole argument. I don't recall anyone describing the ST as "a dead duck". The Amended CPCs had no standard operating system, neither did the BBC or the Mac. They were all by lying wait for dead ducks, weren't they?

Mr. Shepherd also ignores the possibilities of the new machines: artificial intelligence, CAD, multi-tasking. All of which are made as difficult as possible by the PC standard. It's about time people started to look at more than just software in making purchases. True, software makes hardware less of a waste, though this way, we would all be using PC clones. I now think of nothing more depressing, can you?

This letter was written on a 1040ST with 128 MB of RAM. An excellent, bug-free wordprocessor.

Richard Swan
Sheffield
Roses

the W/W labelled box, the other box is that box must be red.

Therefore W/W must be the box labelled R/W since it cannot be in the box labelled then W/W, leaving W/R in the box labelled W/W. The solution can be worked out the same way if a white ball is picked from the W/R box.

Thank you for pointing this out; the solution was printed was less than clear. However, Alan Northcott, the winner, knew exactly what he was doing with the boxes, so no injustice was done.

Kenn Garroch - wanted!

Looking through past copies of *Popular Computing Weekly*, I start to wonder who is the Kenn Garroch? From the photograph he looks like a "wanted" person from *CrimeMasters*.

D G J Alcock
Chertsey



Any helpful QL readers?

I am having difficulty in understanding the various comments pertaining to the QL (which my son has very graciously bought for me), despite constant reference to the very detailed instruction manual, and would like a reader to allow me to write to him for help and put a few questions regarding its use, enclosing, of course, a stamped and addressed envelope. A

Popular Chess - now post-free

With the *Popular Chess* tournament getting into its stride, and so many people asking regularly, inter-clubbies, our organizer, has graciously offered to help you save on all the postage spent sending off the entries every fortnight.

From now on, *Popular Chess* winners may send their suggested moves to the company's Postpost address. No stamps needed.

The one catch to this is that Postpost is sometimes not as fast as first class mail, so if you are sending in your entry with last time to spare, it may be better to use a stamp and the original address. Each address is printed below.

Make your move

Send your suggestions (one suggestion for each game per person, played for the Readers) sent to *Popular Chess*, Unit 2, South Block, The Mailings, Sawbridgeworth, Herts CM21 3PL, with a stamp, or the new Postpost address: Letter-Medians (*Popular Chess*), Postpost, Sawbridgeworth, Herts CM21 3YA. If you are using Postpost, the postage is extra, and please mark the card *Popular Chess* - it'll get dealt with much more quickly. Closing date for entries is November 19.

This week's moves

On with the game. If Game one, the Readers' team, playing Black, has played Colossus's check to moving a pawn out (see diagram). Colossus's reply was to remove said pawn.

In Game two, the Readers are playing White, and opted to put Colossus in check with the knight. In response, Colossus has removed the knight.

Prizes

The last bit of nothing, you know. There's already more than 1000 registered *Popular Chess* players, so for the person who suggests the greatest number of actioned moves in each game, and two runners-up, prizes of Colossus Chess II for the most games lost are yours.



Game one

1. P2-e2 P2-f3
2. P2-f3 P2-e3
3. N2-f3 N2-e3
4. N2-e3 P2-f3
5. P2-f3 P2-e3
6. P2-e3 P2-f3
7. P2-f3



Game two

1. P2-e2 P2-f3
2. P2-f3 P2-e3
3. N2-f3 P2-e3
4. N2-e3 P2-f3
5. N2-f3 P2-e3
6. N2-e3 P2-f3
7. P2-f3

reader's help would be greatly appreciated.

Edward O'Brien
3 Orchest Grove, Kaysbrook
Sheff
Avon BS18 1GB

Printing advice needed

In one of your recent issues of *Popular Computing Weekly*, you described, as I recall, a method of printing at

near letter quality on a Commodore 64 and various printers.

I wonder if anyone could kindly suggest a routine for this to operate on the Plus II 800. I would also be grateful if anyone could inform me of a routine which allows the above to be used as a type writer, direct from the keyboard.

D G Carey
Northolt

A trip down memory lane

The BBC Master Compact is the latest of Acorn's machines to use the BBC technology. Duncan Evans supplies the details

The BBC Master Compact is Acorn's bottom of the range computer, designed to compete in the Amstrad market with its built in disc drive and colour monitor.

The Compact is, of course, a repackaged Master 128 but without all the frills. Initially the system, comprising of a keyboard, plinth housing the power supply, disc drive and monitor looks very stylish, but then again the BBC always was attractively designed, until all the connecting wires have to be fitted and then things take on a more sloppy appearance. Power, disc and monitor cables all have to be connected to the plinth. The colour monitor, as well as looking good with its cream and beige housing, gives a very clear and steady display.

The monitor uses one of the BBC's 'steep price' but in order to cut down on an Acorn like move I give these ones and some of the lower cost ones have gone. The User port, analogue port, cassette, 1MHz bus, TV modulator (available as an extra costing approximately £20) and Shogun-style disc interface have all gone to be replaced by disc interface (for 3 1/2 inch drives), one Acorn joy stick, 80486, 80486 socket.



The BBC Master Compact

RS 100, composite video and RS 100. Also, the power port has been changed so you'll have to buy a new one if you're upgrading from the standard BBC.

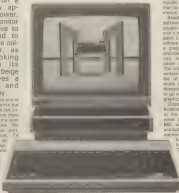
The keyboard has a somewhat cheapish feel to it and is arranged in two sections, the main one containing the usual ten red function keys, the other being a standard keypad. The keyboard unit is fairly light, an indication of how many of the frills have been removed or transferred to the plinth.

If you leave the disc supplied in the drive on powering up the machine it becomes apparent that Acorn have made a half hearted attempt to get away from the programmer type user, in the form of person who doesn't care what's going on underneath the bonnet, and the provision of desk-top-like front end. Just how half hearted this effort is can be gauged by the fact that it's not in Basic, it's written in Basic. There's no menu provided and compared to the Master tool or Gen on the ST it's something of a joke. Unfortunately the only way to get to the View window (provided in Basic) is via the front end software. It's a fact quick to type commands is to access the disc than to use the staggered down market.

Besides View, the other software supplied includes a couple of games, BBC's version of a word processor, Impaint, Logo and a number of utilities. Impaint is mainly a graphics package which provides some useful features, namely file, cut and paste and colour shading. The trouble is that it is not written in Basic and is capable of drawing only very crude designs. The sort of designs in fact that drive you to go and buy a real piece of graphics software.

Dispensing with the water facilities and getting down to the nitty-gritty, the two weak points of the original BBC were lack of memory and lack of colour. Taking the memory problem first, the

Red now, is a considerable amount, been used. The Compact comes with 128K memory, the organisation of which is quite flexible. On power up the operating system (MOD) claims the memory up to



AM00 as exact Basic then fits up to 48000, an area normally consumed by the screen memory. The screen memory is shifted to an area of Ram 20K, long called shadow memory. From 48000 to 80000 is where Basic resides but it also the area where the advanced Ram/Ram can be switched in and out of.

Four pages of Ram 64K, as total and three pages of Ram are fitted in the Compact although the theoretical limit is 16 lots of 16K Ram/Ram if you have an expansion board of course. The MOS Ram works as normal from 40000 to 48000.

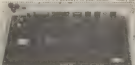
What this all means is that the Basic programmer has 268160 bytes of memory to play with initially. Now, recognising that this initially isn't good enough, Atari have provided on the disc a version of BBC Basic which loads into the normal Ram and allocates 12K to the MOS, leaving the hardwired Ram as Plus, for all reports and purposes, a compressed 64K of memory is available for programming.

On the colours front the changes have been in providing various shades for mixing those available. While this does not really give the illusion of new colours it at least backs up plain displays into something more attractive. Even so,

you'll never get anything that has the realistic grey look of a Commodore.

Changes to BBC Basic have been limited to very few, the most notable of which being the expansion of the Plus command. Originally this provided what a funded variables, now it allows 200 which includes the provision of arrays, arrays, file and local arrays.

And so, to software compatibility and the most disappointing with the Master Compact. Many of the machine's prospective buyers will be BBC upgraders but unfortunately there's no cassette interface on it's goodbye to your collection.



tion of cassette-based software. On the disc front things are severely better. Using a 5 1/4 inch disc drive may provide mass storage and be more up to date than 5 1/4 inch disc but it surely represents a shift in the feet by Atari. Being given your disc collection unless you keep the drive and buy a special cable and install a

2 1/2 inch in your Compact. For the first time owner of an Atari machine is also meant buying a 5 1/4" disc drive, which also defeats the object of providing one. Once you've got the new, to then there's the choice that your favourite program won't be compatible with the Compact drive.

The Compact is a more attractively priced BBC than ever before with the range starting at 1600 line monitor, no TV modulator, 19800 with monochrome monitor and 19800 with colour monitor. 5.4 inch disc is expensive for what you really get. It's a better machine than the Amstrad CPCs but then again it costs a good deal more. At these prices Atari is putting the Compact at Atari 800 87 and Amstrad 1612 levels but compared to the 87 it comes off a pale second best. At around 1400 with a 5 1/4 inch disc drive, decent monitor and colour monitor then the Master Compact would represent a very good buy. However, it's good, but it's not new.

An upgrade machine from the BBC 8 then the Compact would have been the natural choice but for the lack of consumer and inclusion of 5 1/4 inch drive. Atari has commercial ally which will integrate what is a good machine to specialist markets.

The great Christmas extravaganza

9th official Commodore computer show

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Marshall, Hemmingsworth,
London W6

HOORS

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10am-5pm Saturday,
November 22
10am-5pm Sunday,
November 23

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Classy black and white art

Clarus Micro Supplies' Artroom package is now available for the Acorn Master Compact, which is reviewed on page 16 of this issue, and is the first of its packages to be written specifically for this machine.

The first point to make is that Artroom operates in black and white only. This is because, says Clarus, it is intended to be dumped to paper only. However, in the light of potential competition

(Wangrey House's The Artist for the BBC, for instance, this could be seen as a drawback).

The program can be started via the keyboard or a mouse. Needless to say, any keyboard operation is slower, but since there is no mouse supplied with the Acorn Compact, you need to buy one as an extra if you wish to use it.

All drawing operations are achieved through an icon window, separated from the canvas. What exactly each

icon represents needs to be learnt as some of the symbols are obscure, others are quite obvious.

Because the program gives you black and white only, the resolution is very high, and drawings of extraordinary detail can be created. The rope option (which makes every part about the size of a brick!) helps, you spin it down more, while the variety of 16 patterns gives you good contrast between shades of grey.

All the usual facilities are there, the rubberbanding, erasing, different pen thicknesses, circles, rectangles, lines for text (in sixteen rotating positions, etc). Don't, whatever you do, try to overfill an already filled area, or you copy the bad disastrous results - it crashed.

An £27 Acorn card probably what you expect for your



own BBC software, and given time and a bit of talent, it has all the facilities to help you create some beautifully detailed drawings.

Christina Eshkine

Program: Artroom: Micro Acorn Master 128, Master Compact Price: £27, £25 respectively, disc only **Supplier:** Clarus Micro Supplies, 24 Woodstock Road, Northwick, Chelsea SW16 6AX



Get writing - get Popular

Popular Computing Monthly always welcomes contributions from its readers for articles, features, and program listings.

Whether you want to write articles, give programming masterclasses, or just pass on some words of wisdom, or simply let off steam, there's space in the magazine for you.

Ideas for feature articles, or completed articles, should be sent to Christina Eshkine. All aspects of home computing are considered, but we cannot handle topics across anything longer than 2,000 words, so kind is best. If it's worth checking by phone or letter first that your article will fit suitable. Payment is normally £25 per published page.

Technical editor Quincey Evans looks after the program listings, and writes on programming. We rely on you for our Programming section, so can count on a slot in the Popular Hot 100 Fame card £25 for each page we print by having your program published. Send it in by 1000 of 15 of pure machine code, but a short program routine, there may well be a place for it in Bytes and Pieces (£10 a shot).

Articles on any aspect of programming are also welcome - with their listings included if relevant.

Get something you feel needs saying loud and clear! Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Biggest** section? No more than 500 words, please. If published, we'll pay you £25.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries, there is of course the **Letters page**, with the tempting offer of a year's supply of Popular binders for the 50th Letter each week.

For more specific points, our team of contributors are always willing to answer questions, we keen to hear the latest information. Drop your letter to Tony Bridge (advertisements) and always gratefully received. Tony Rendell (with names so many Acorns, poles, traps, solutions, etc, so possible), David Wallis (programming), Ross Garsch (programming problems), Mark Jenkins (music games and sample tapes) and Martin Bryant (corrections) check comments.

All letters should be addressed to Popular Computing Monthly, 12-13 Little Newmarket Street, London WC2E 8PP. If you mark your letters with the department you want, things get processed much more quickly.



Left: the advertisements Tony Bridge. Right: the editor Tony Rendell.



A masterful music collection

The Microsoft Collection is just that — a varied selection of music software covering education, performance and programming. None of the individual routines measure up to specialist packages such as Roland's Advanced Music System which provides an occasional technique, but collectively this suite of programs has a lot to offer.

The main menu offers six loading options: *Universal*, *Musicbox*, *Musicbox 1 & 2*, *Rhythm* and *The Space* which are I think in order. *Universal* is at once the most sophisticated and the most useful of the suite — it's an educational routine designed for a large class and records scores from a musical notation software kit.

Pairs of notes are sounded, together or separately, and the user has to enter his guess as to the interval between them in semitones. A table of scores (in here for display simplicity) is set up and can be scored on a single file, and the table becomes progressively more complex, introducing more and more intervals and variations in speed.

Universal is a pretty effective educational tool, but most of us will be interested in more creative applications. *Musicbox* offers this, saving the BBC's panel into a three-note polyphonic organ, or a monophonic synth with envelope before organs and an amazing pitch bend operated from the < > keys, or a single-finger chord organ arranged across the whole keyboard in a small part of it. You can load and edit many sounds, and adding these can create some pretty wild synthesizer effects. *Musicbox* isn't very educational since it doesn't show which notes are being sounded or anything useful like that. *Rhythm* is even less educational, being a set of seven variations on the *Simon* game with various levels of difficulty. It involves more about eye-to-hand coordination than about music, despite the fact that it's based on beeps and coloured squares.

The two *Musicbox* programs deal with simple performance and note recognition. Part one plays a series of five notes, leading them up on a wave and a keyboard display, each series being based on a chord sequence. It's a sort of auto melody composer, while the second part is a simple recorder which plays back your keyboard performance and allows you to transpose it, add a key change, or re-program the playing of the notes by tapping a single key. The second *Musicbox* version includes *Timed* a Basic routine for entering three-part harmony tunes which you can load and re-program yourself. You certainly won't want to hear the clever demo of that that's why *Continues* has many other titles: *Chord*, which shows chord keys and bar length symbols in use on the organ, and *Timed*, which is similar to the

envelope editing function of the 3-note organ version.

On to the last section, *The Space*, which in fact could more happily have been called *The Sequencer*. It allows you to record three channels plus a noise channel, play back patterns up to 2,500 notes long, time correct performance with a single key, fully patterns so that each voice has notes falling on the same beat, and so on. One voice is recorded at a time so you can carefully build up quite complex pieces, and you can repeat large sections of your composition as desired and store the result in disc.

The instructions on the video system are very easy to follow and give logical, almost foolproof, but the presentation isn't very exciting on most of the screens. Simple tables of values won't hold the attention for too long if the purpose is educational,

and won't provide too much inspiration if the purpose is creative. Graphic sound editors such as that on the Advanced Music System are more interesting, but then the *Musicbox* package is much more interesting as an educational routine than *AMS* will ever be.

The *Musicbox* handbook is a simple but clear and covers the package provides reasonable value for money. But it does have a lot of composition in some areas, and while educators may find it a uniquely useful, budding symphonists may feel that it is a little basic.

Mark Jenkins

Program: The *Musicbox Collection*—*Musicbox* BBC 5 and *Master* 128. **Price:** £19.95. **Supplier:** Duckworth, The Old Pine Factory, 43 Gloucester Crescent, London W6H 7DY. 01-626 5366.

Living in a model universe

Whatever your level of interest in computers, chances are that graphics will grab your attention. And if you reason computer graphics so much people, what springs to mind are those apps, programme pictures beloved of science fiction and spy movies.

Now *Model* owners can create some impressive displays of their own with *Model Universe* from Amos.

The package, supplied on tape or disc for Amos 486s and 630s, allows you to create 3D images and then shrink, enlarge, rotate and generally push them around a screen.

As a bonus, and a bit of added value, you get a free game on the floppy called *Steinschwer* a sort of mental agility involving barrels, colours and moving graphics.

But back to the universe. There are a host of features, including the ability to set up your image precisely and

emphasise, by using a series of co-ordinates, or the ability to move a sound in real-time using joystick, mouse or keyboard control.

Designs can be saved to tape or disc, or output to a printer. You can also incorporate scenes into your own programs, or load them into other graphics packages for further manipulation and enhancement.

My main gripe about *Model Universe* has to do with the drawing mode. This is very primitive by the standards set by current graphics programs.

For example, there are no on-screen menus, no keyboard commands, and very little interaction. The mouse, that when you draw a line, you set the start point, then move the cursor to an end point, press a key, and the



line is drawn. If you don't like it, you delete and try again.

Beyond this, *Model Universe* works as advertised. The trouble is, what are you going to do with it? Amos describes it as "an introduction" to three-dimensional modelling. And it ends there.

It isn't really powerful enough for professional use, and how much long-term interest it will provide is open to question.

Still, if this is the sort of thing you like, you'll enjoy *Model Universe*.

Peter Waddock

Program: *Model Universe*—*Amos* 486/630. **Price:** £19.95. **Supplier:** Amos Ltd, 118 Whitehorse Road, Croydon CR9 2JP.



Karate's cutting edge

Pandora has come up trumps with *50 Karate*, probably the first martial arts game on the ST.

The object of the game is to achieve physical enlightenment, and to beat the hell out of anyone who gets in your way. There are a total of 18 different moves, from head punches to flying kicks, all

controlled by combination of physical direction and the fire button.

The colourful and well-drawn, would-be Bruce Lee figures leap around and perform the various moves in a smooth manner, resulting in the score being fast and furious. There's also the tactical element as one fighter's at-

tack level drops to pick and he must avoid confrontation while waiting for a basket to drop from the heavens. Defeating one of these floating baskets mysteriously results in your energy level being increased. The last thing that can drop from the sky though is a time control mask, linking that game you are really in.

The backdrops to the violence include Buddha, pavilions, lake edges with a junk, pine, interior and bathroom scenes. The first two probably shade the others but all are of a high quality graphically.

The one player game has

more variety, featuring two opponents at a time and even more scenes of hitting, bouncing or swiping columns of baskets but it's more enjoyable when pitting your own skills against a human opponent.

It may not be particularly original but *50 Karate* is definitely one to consider when you feel like kicking someone in the head.

Popular Appeal ★★★★★

Developer Score

Program 50 Karate Micro
Disk 5.1 Price £24.95
Supplier Pandora Soft-
ware Ltd, 49 Hoveley Av-
enue, London SE22 4UR.

Weaving that (not so) magical spell

If almost goes without saying, that creative types do better work on their own projects, then when they're working to someone else's specification.

A prime example is the Level 5 team, capable of producing some of the best adventure game titles have turned out such good stuff as *Adrian Mole* and *The Fishes*.

Now, in similar vein, comes *The Colour of Magic* under the new Pandora label but programmed by Delta 4 - co-developers of the splendid *Bigger and Better* and *Shogun*.

The Colour of Magic is based on Terry Pratchett's book of the same name, and concerns the trials and tribulations of Rincewind, the fourth-rate magician.

Rincewind lives on the Discworld and gets employed once as translator to Terebinth, the first tourist in this other-dimensional backwater.

Colour of Magic concerns the trials and tribulations of these two unlikely companions.

The most noticeable thing about the Discworld is that it doesn't conform to normal directions. Instead you must use the terms *Midnight*, *Re-*

ward, *Townward* and *Westward*. Although this is a little confusing at the start of the game, I found it immensely amusing.

The same goes for the game's vocabulary. Obviously you can't access anything as far as to the standard of *Midnight*, or *Level 5*, but this is much less irritating.

There are a few graphics

but they fully support the text-only colour; they add nothing to the game, are irritatingly slow to be drawn, and sometimes images that would have been far better employed in expanding the game's vocabulary.

All in all then, not Delta 4's finest hour, and an unnecessary debut for Pandora in the adventure field.

Spend your money on something better than a lot of words at the moment.

Popular Appeal ★★

Peter Watlock

Program The Colour of Magic Micro Commodore
24/128 Price £9.95
Supplier Pandora, 4 Little
Fishes Street, London
WC2N 3LP

Gee-whizz technopop

BSC owners - at least as far as game-playing goes - are almost a forgotten breed these days. So it's nice to report the arrival of a real classic.

Again it, as you will guess from the title (even if you're not familiar with Popkin and Kaplan), is not really original but the third in a successful series.

The special effects are not outstanding, the graphics are a touch higher than the standard set by the VIC-20, and the animation leaves rather a lot to be desired.

So have we no clear cut what it is not, let it establish what it is.

It's a brilliant, well-thought

deally addictive.

There are 34 screens to the game, each of them a series of logical puzzles. A typical one might have a very narrow entrance. To get a diamond, you climb a ladder which blocks the entrance so you can't get out. So fast you move the ladder, get the diamond, then discover that moving the ladder prevents you from getting that other diamond. You get the picture.

My way of further appreciation, you're so against the clock - but turned away on some of the screens are cartoons which give you extra time.

On the earlier levels you can call up a map screen, and

once you've finished the game (nowhere around Easter, 1988) you can get a custom design to feature yourself over further.

It's available on cassette or disc, there's a version for the Electron, and a 3 1/2 inch disc format for the new Master Compact.

Just go to show there's more to computer games than gee-whizz graphics and a halfhearted soundtrack.

Popular Appeal ★★★★★

Peter Watlock

Program Popkin 3 Micro
800 Micros Price £9.95
cassette £11.95 incl.
£14.95 3 1/2 inch Suppl-
ier Spectrum Software, Pa-
permill House, Skinner Lane,
Leeds LS7 1AZ.

Time warp to Chicago circa 1920

Does your sewing about games and puzzles throw a few things out of whack?

They seem to feel obliged to put on phoney, 1930's American-Italian accents which, while allowing an actor down, becomes dull after a while.

A number of second-class games have been produced along these lines. The *Walt Disney* is Supra, written by Ed Hines and distributed by CBS.

So, we passed to the border where upon the whole bag was dry, and pulled it off. Sugar is always in large quantities.

It is still common for the old-fashioned to appear, sometimes with a touch of the new.

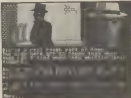
and's knowledge in making fast food an industry. All Capone and Alvin Karpis did.

Bugay is a cute, blue-furred rabbit. (And when you're the only cute, blue-furred rabbit in town, a life-of-crime is a lot different.) You need to get

But even your old gold piece may exceed the dealer's offering, depending what the local gold market is like.

For example, how does such an eye-catching raincoat pull off a robbery? Easy — the jacket is made of

Supply is an essential component of the business plan and a must to read. Don't forget to include a supply list that lists the products, but also, include the sources of the products to the business plan.



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Of course, it's a game of questionable morality. Along the road to success, Sney

will have to include a list of names of persons including - but not limited to - smuggling, drug traff, armed robbery and murder. Details list, should.

Some of the questions are tough in the first instance, but aggressive in the right circumstances this study turns

my job involves a lot of travel, frequent flying and phone calls. Later you'll have to be mobile, business-caring, energetic. But with a few more years, you'll be able to do it all.

Shopy is an 18'x28' retail unit
open 11-10 of shop hours. 11a-
10p. 11a-10p. 11a-10p. 11a-10p.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Program Supply Misses
Commodity: 1st Price
C799 Supplier: CRI, 6
Single Prod. Category's
Best Vendor: CRI

Taking chess to a higher dimension

After being refused and refused for a second time, a different company, Project's Clear program, has been introduced on the April 27 on what is probably an even lower level.

On loading a third dimension, a view of the loaded is displayed in four columns on the ST's medium resolution screen (540 × 700 pixels). The pictures are clearly drawn and undoubtedly represent the best quality of any on-

can yet produced, but inevitably it is easy to overlook something vital which you have found or made of them in a vertical line. After a few games through, suddenly with the designs presents itself the talent necessary again.

As they say, all the various, discreetly hidden until the user is inside there, are the various drop-down menus, which give access to all the options and facilities provided by the program.

If you find interactions that there's the *Help* option, the display can be switched from 3D to 2D and back again with just the click of the mouse. *How* and *Analysis* options are there to help you and if you've made a mistake, *Back* means that there's always the *Undo* facility, or if things have gone downhill too far you can *Reset* and play with your opponent's moves.

Speaking of experimental you can play around the identification, response is linked on part of it, so that the 5.3 value itself.

Flexibility of the legal system is crucial, including the fact that, in England, one is allowed to skip a court hearing because he or she is too busy.

All these trials would be of superficial value if the programs played poorly. Thankfully, it doesn't. With 20 hours of play ranging from leisurely to extremely painful, waiting for the computer to finish you should find your watch time whizzing along the time machine your name is Keener, is correct. Even at the risk

setting of an ancient Polynesian story, a gritty action game which will go on to show the power and speed of the 32 have been put to good use.

Finney, one of the most interesting features of it is the inclusion of 50 chess chess games played on the disc, covering the last 150 years and including a couple of Kenner's Chessmate matches for you to examine and even play from any perspective point. An overview of these matches is given in the manual by International Master Andrew Martens.

If you have an ST and you want to play chess that don't include *Apex Chess*, buy it.

Popular Appeal ♦ ♦ ♦ ♦
Dorothy Dyer



Program: Child Abuse
Age: 11 Price: \$24.95
Supplier: Peace, Love,
Honey, Harvard Books
© 1998 MCA, Inc.

EREBUS

£8.95

COMMODORE 64/128

This smooth scrolling, ultra-real game features the very best in fast arcade action by Steve Lee (author of the Falcon Patrol series and Shogun), with stunning graphics by Martin Wheeler (famous for Spectrum Dem Dons and the original design of Sorcery). It's a multi-sectioned game with many varieties of tough aliens to eliminate. You must fight through each wave in your highly manoeuvrable spherical space fighter and save Earth from the horrible fate of the noxious gases being produced on planet Erebus.

Invest in some real action for your Commodore 64/128

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Stirring tales

Down these mean streets a half-dozen mean walls.

The streets belong to Skene Bros, one of the toughest sword-and-buckram fantasy universes. Hate them and fortune can be yours, because Skene Bros is a town peopled by terror and the streets are paved with corpses.

This is the setting for *The Skene's Tale*, the first new role-playing game by Electronic Arts out of the Amiga/Apple stable.

The bard is one of the great original characters in RPGs. A skilled musician, he has turned to the magic of music and the songs he plays can protect

your band of adventurers, soothe your savage enemies, or even bring light to dark places.

The plot is familiar stuff. Skene Bros is in the gap of the evil mage Mergal, the town's soldiers are gone, and bands of wandering-dwarves are roaming the streets.

Your mission is to persuade Mergal of the error of his ways, or, kill him. But unless you can do that, you'll have to build up a force capable of doing the deed.

What makes *The Skene's Tale* so outstanding is the presentation.

The screen display is split into three windows. The largest contains the vital statistics of your band, which controls six adventurers, plus a slot for a seventh. The latter can be a monster who may join your party, or a magical creature summoned by one of your powerful sorcerers.

The second window is a full-colour, graphical view of



your surroundings - the streets, the masses of buildings, inns, temples, and markets the dungeons. You'd also get pictures of your character here, and enemy monsters - many of them animated.

The third window contains a scrolling textual description of scenes and events. In combat, you get a blow-by-blow commentary here.

So, if you're stomped on every monster in hourly, tramped over every square

metre of the Skene's town, get a copy of *The Skene's Tale*.

PS "a full-on" and "full on" are not at all the same thing. The latter is not much use to anybody unless it's got gold in its pockets.

Popular Appeal ★★★★★
Peter Woolcock

Program: *The Skene's Tale*
Media: Commodore 64,
128, Amiga 250/50, Super-
gopher, Amstrad, Long
Am, Lanier W602



Stand tall - stand guard

Oignality is a word of the landlord but little adhered to in the wacky world of contemporary software in the Year of our Lord 1988.

Consequently, when something this original turns up, it tends to knock your socks off. What we're talking about here is *Stand tall*, the latest PotBod release on BBC and Commodore 64 - with

others to follow, maybe.

You start off in Landscape Zero, finding yourself stationed within a Magic Wizard-type landscape, with the ability to look left/right and up/down.

Looking around you will see an entire vista of surroundings and trees, with a figure placed at top of a pinnacle. That figure is your enemy - the sentinel.

The sentinel scans the landscape very much like a night-vision. Only its gaze is deadly in that it drains energy from your vessel (that's you, incidentally). You start off with barrels of energy, as indicated in the upper left hand portion of the display.

It's a question of kill or be killed, which is where the clock for control in using your reserves of energy, you can choose things. This is sort of like a game of energy to block the gaze of the sentinel, flounders, seeking help to increase your height and have ideas, at a cost of three. Why should you want to increase your height? Because being at a higher level than another object on the landscape, allows you to absorb its energy. And that includes sentinels. And that includes standing at home by using an on-screen target.

You have control by pressing another robot, then translating your "being into it. You can now absorb the energy from your old body and get on with the business of surviving.

If this sounds difficult with one control, well, as you get

along, you tend to get ideas, too. In all places, somewhat different sounding a different part of the landscape. This is generally happening in the potBod and you will moving around randomly in an attempt to get out of a zone. Hyperspace like that unfortunately this costs another three units and generally getting your hat messed up. And here's the punch line. Have energy levels to Sentinel? 1000 10000 50000 need be, 10,000 separate landscapes - and you start at zero.

Each landscape has a unique "secret" entry code - and in case you're thinking of trying to hack into the thing, Mr Commodore has actually encrypted these codes, and in his own words, "unravelling the system would take an awfully long time".

Popular Appeal ★★★★★
John Cook

Program: *Stand tall*
Software: Price £9.95
incl. £14.95 inc. tax
Supplier: PotBod, 74/76
Oxford Street, London
WC2

The cream of the Christmas crop

Tony Kandle this week brings you a variety of tips — including games to help fill Santa's sack



As promised last week, the following tips are for the new game *Star Wars: Cortex*. Make sure that you keep your copy close to hand as we will be offering some tips for the game in the near future.

Here are some tips from Steven Kahan for *Medien's Dexterity Run*.

"Get the honey from floor two and the box key of floor three. Take them to the lock in the box and jump on it. Swap the honey for the teddy bear. Get rope from the cat and go to space invaders to get through the door. Jump on rope in new rooms. Forget the pop gun and click pop to join the soldiers.

"Patch gap from the roof and the duck from the swimming pool on floor one. Take duck and flag to the beach to get the pebbles. Get the catapult from the cat and it will become loaded. Get the broken rock and bulb which will now become a working torch.

"Take the loaded catapult and the torch to the dark room and shoot the ducks to get rope. To get past the hand get the glove from the breakfast room.

"Can anyone help with what is to do with the red whale, camera, 'A' book, Pete's book, radio, 'D' game, rope bomb and coat of armor? Also does anyone know where the hammer is in the Commodore version of *Pyramaze* and how to save a game in the C64 version of *Solaris*?"

After having made a successful entry into the software market with its Budget range, showing that quality and low prices need not be mutually exclusive, Festival went into the doldrums for the middle of this year. It was living on commissions of old hits such as *Killer* and new releases such as *The Corner Game*.

When I saw that the Silver range had been 'refreshed' with such exciting, and apparently immortal, titles as *Witchapper* and the *Wild Bunch* still in the fire, things looked brighter still. I'm now happy to admit I was wrong — the newer budget games are so much fun, and such excellent value, that they have put the Silver range back into the top quality class.

The games to look for are without a doubt the extremely popular C64 *Man-A-Rail* and the lesser arcade conversions *Space Invaders* (Murdock) and *Shogun* (a wide range of machines). The latter is a vector graphics game of exceeding skill

and much frustration which has been very well done. *Star Wars* is a very smooth 3D simulation game, which, while traditional in its play and not particularly innovative, is as good as anything Nintendo has done and well worth the price.

The one that really bowled me over was *Harvey Rosenberg's (Amstrad)* — a very easy simple game to play but very well programmed indeed, addictive and loads of fun. It's a safe Christmas present for anyone, including yourself.

Other brilliant games that are around at the moment include two that have, despite all the odds, come up with new and very playable variations on the 3D strategy theme. *Cosmosphere's Elder Rider* has been out a while on the Spectrum but the new CPC version is one of the few that really make the most of the machine — high resolution, good use of colour, continuous sound and the same very clever game behind it all. The key here was for anyone who is stuck in this game is to drop into the

pylons as you can temporarily disable the laser beams — any more ops than that will be welcome.

Ocean's third since *Seaman* is undoubtedly *Great Escape* — a fascinating game which portrays life inside a German POW camp where you have to sift a myriad clues and red herrings to find the way out. Loads of riddles, loads of misdirection, loads of action from the other inmates and an absorbing scenario. It's open to anyone to go all back and see the daily life of the camp going on without worrying about escaping.



Charts

Top Twenty

- (1) *Infestation*
- (2) *1942*
- (3) *Trial Pursuit*
- (4) *Flot II*
- (5) *Paperboy*
- (6) *Computer Hit Vol 3*
- (7) *Grass and Goblins*
- (8) *Lightspeed*
- (9) *Ninja Master*
- (10) *The Great Escape*
- (11) *Thrust*
- (12) *Trap Door*
- (13) *Dragon's Lair*
- (14) *180*
- (15) *Pub Games*
- (16) *Warhawk*
- (17) *Unikum*
- (18) *Quid*
- (19) *Kana*
- (20) *Green Beret*

All figures compiled by Galtus/Microscape

- Mindcaper/US Gold**
Elite
- Demarc**
- Melbourne House**
Elite
- Beau Jolly**
Elite
- Faster Than Light**
Firebird
- Ocean**
- Firebird**
- Piranha**
- Software Projects**
- Mastertronic**
- AdLib**
- Firebird**
- Harwood**
- Firebird**
- Mastertronic**
- Imagine**



Intercepting the commands

*This week, Tony Bridge saves you hours of frustration with **Interceptor** tips, plus other news from the adventurous world*

There are gamers making the sounds of a Super-Golf in position known as the *Darkshire*. A well, I'm told, combine the graphics and text capabilities in one package and include lots of other new features. However, there is nothing concrete yet, and I'm sure that I'll be able to bring you more details as they become available.

To get away from *Quill* adventures, however, and to visit once more the hallowed realms of the original mainframe away into the ether world, let's have a look at a game called *Just Refreshing* and *Stunning Originality*. Adventure from these originality, and why has nobody thought of a different Adventure Software. What these people lack is thinking up titles in it, admittedly, a provisional title, they more than make up for in the contents of their adventure. It is very interesting to a reviewer as these days of the ubiquitous *Quill* though I'm sure you'll all agree that it is a great utility to come across a non-*Quill* game, and a more favourable outlook is certainly taken.

The author, Nigel Brown, tells me that he originally chose the well-known scenario in order to test his adventure-writing system, but that his complete orientation of the well-known theme was good enough to launch as a fully fledged game. I must say that the game is very well presented - not only with very attractive decorations throughout, it retains, curiously, many features of a *Quill* adventure (such as the 'R' command and so on), but there is much more besides.

Although the puzzles remain largely the same, Nigel has taken a leaf out of Level II's book and added more locations, this time to the beginning of the effect that it is to make the whole of the subterranean world more believable. The player doesn't just happen to stumble around the labyrinth, but has other promises lying around the fact, but how to work hard to obtain them. Objects can be carried in the pocket, or taken out for

use - again, more believable. As much thought has gone into the rest of the story - apart from an attention-looking and weird character list, all sorts of city inputs seem to be entered in, including most of the usual swear words (at

room and the but and so on) are handled in a rather different way than usual, and all the better for it - the syntax, for example, puts the but and then simply windows off, replace. I have to say that it's a more elegant solution.

I hope you can see more interest written with the system, although the price for *Just Refreshing*, as Adventure Software insist on saying, which is the only game I have managed in the system, another (my plus point) is not the equal of other more complex examples, it is perfectly adequate. *Car and Ship* All are possible, as are *Arm Slave* and *Lead*, though these are only possible while carrying a certain object.

I don't know how much Adventure Software's plans for *Adventure*, but will be them at 21 Dashing row, Brighton, Sussex BN1 4SD and give them a nudge.

It seems like years since *Interceptor* released their last adventure, but in fact *Horror* is only some months old. Like the other programs, the new *Horror* is written for the Spectrum and all the Amstrads (including the PCW) by David Brown and illustrated by Tony Green and the pictures are for the most interesting part of the story.

As usual they are brilliant, but they have the added dimension, in the present case, of animation. Thus, a hand waves weakly from beneath a pile of rubble where its owner has already died, a plane of smoke rises from the lava.

As I'm getting ahead of the story, which concerns *Amstrad* - or rather, the more than threat of nuclear disaster. A large earthquake has led to waste the city in which the adventure takes place, caused by the local nuclear testing range, the reactor is now in danger of a Chernobyl-like meltdown. You may think that you are going at home idle napping at the keyboard of your computer, but you are actually the designer of the reactor, and the only person in the world who can prevent a major catastrophe, so why are you just sitting there, idle?



All pictures from *Interceptor* and *After Shock*.

course, the *En* only has this on *Horror* and the persistent use of naughty words gets old and only put in place. Asking for help is a little strange - you must first say the magic word, which will then suffice on its own.

As I said, the puzzles remain largely the same, though the well-known first and rapid return from end to the 'R'

The story starts in your casually tidy office (no pretensions at all this period), from which you must somehow escape to effect repairs to the reactor. There are just half-a-dozen hovering at the start, and as far as I know, only one way out. That is where the basic flow of David Banner's adventure system first shows itself, the way out, through a panel at the ceiling of the lift, a pretty obvious even to me, and the method of making the escape is also obvious. A nice invisible clue is waiting there in the first room, so take it to the lift and - well, not sure they pressed first of all, you can't do anything, instead you must take.

Okay, maybe David Banner is one of those artists who refuses to ever look at a door (barrier for fear of contamination, and that is fair enough - but look at the method in its entirety instead from the lift, and the commands required).

First of all, having dropped the chair, you move from Climé Close Chair. This

won't stand an oval, or the lift or the Chair, or the Chair or any other Therapeutic-mapped alternatives. Next, you must Banish Ceiling for the panel to be revealed, then Airflow Panel.

Of course you must get out of the lift through the panel, but the only command recognised by the program is Climé Out Of Lift. Again you may say "Well, isn't that obvious?" and it is, but I believe that we have all revealed a fair degree of the path since adventures first arrived and would expect some sensible alternatives to be accepted.

After this first round of frustration, the story opens but quite a bit, with lots of locations and objects with which to be puzzled - but you'll still need to keep in mind the strange workings of the Bannerworld. Almost all the puzzles are conducted in the same convoluted fashion as the lift problem - later on, you must get a blueprints machine and but you can't use the words that any normal person would use, especially in a tight situation; you must substitute *Machine* for more absolutely no room for a couple of words!

I imagine that the main problem facing the author here was the sheer amount of memory required for the graphics, and Interpreter seems justifiably proud of this, in the recent *Amstrad* show, a willing demo of the pictures was being displayed on their stand, but unfortunately, none of the best. I think that it is



same experience too! I'd actually prefer an adventure to be split into better parts if it means that we can have both pretty pictures and a reasonably gripping puzzle.

Atmosphere comes largely from the scenery although the descriptions are much more evocative than the old "You are in a..." of yore, and these are supported by these wonderful pictures. These are very skillfully drawn (you can't see better draughtsmanship outside a CAD unit), and beautifully composed with Green using the best of some book illustrations.

An (3)-24, *Atmosphere* might well have proven irresistible, for there is a good story here, well illustrated and quite atmospheric in the role to cool down the reactor, with some interesting puzzles - but with inflexible packages available to almost the same price, Interpreter must mean that players deserve more for their money (remember that "Try another cartridge!" even if we are being stupid).



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Computing

WEEKLY

SPECIAL

Nov 12-Nov 19

PERIPHERALS

Video pictures on your computer? Easy with video image digitisers

A mouse in the house: easy data input

Monitoring the situation

Search for a star with the latest printers



Getting in touch with a modem

Buying peripherals for your computer is, by definition, a harder task than choosing the main itself, because for every computer on the market there are plenty of printers, monitors, modems and other assorted bits of kit.

The aim of this supplement is not to tell you what to go out and buy. It's to give you some idea of the choices involved and the pitfalls to avoid in building your system.

Apart from looking at standard items like printers, monitors and modems, we're also considering some of the more recent "fancy" items like, which can contribute as much to user-friendly operating systems, and the latest in video digitisers.

Next week we move on to the joys and horrors of choosing a computer. **◀**

Pixel perfect pics

PATRICIA SAVAGE ON THE BLACK BOXES
LINKING YOUR HOME MICRO TO THE
OUTPUT OF YOUR VIDEO SYSTEM

After the home computer, the biggest market for consumer electronics in the last few years has probably been the video recorder. The UK has the biggest percentage of households owning video recorders in Europe, and overall penetration is particularly high among home computer owners.

Inevitably, the idea of linking the computer and the video machine has developed into an interesting market. Practically any micro can now be used to capture video signals from a recorder or a video camera, and manipulate them by adding artificial colours or incorporating them into other programs. The applications for digitising games, desktop publishing, data analysis and other fields are obvious.

The latest video digitiser product is for the Amstrad CPC series, produced by Data Motion, best known in the Dragon computer market. It's a reasonably priced device with a decent specification.

Like all similar products, the Motion digitiser works by converting the signal

intensity levels of the video image into a form the computer can understand, and present as a screen image. The final quality, of course, depends very much on the resolution of the computer.



The Motion digitiser can sample a picture in 1/40th of a second. This means that moving images can be frozen

efficiently. The alternative for slower digitisers is to use the pause function on the videotape, which often results in visible or even freezing. Beyond the Motion digitiser has a high scan rate, it presents a small continuous "monitor" image of around 640x. When you have loaded the image you want to digitise, it takes around

10 seconds to capture the picture and present it as a full-sized image.

Resolution is 640x480 pixels, operating in mode two. The results, which can be stored on tape or disc, can be hard copied to a suitable printer, giving a "mosaic" effect where pixels are either set on or off, there are no gradations of tone.

The digitiser stores the pictures in DRAM of colour memory, and comes complete with software on tape or disc and a video connector lead.

Products: Amstrad Video Digitiser Motion Amstrad CPC Prices: £169.95 Supplier: J. Kierston, 1 Ben Grahns, Lingley, West Yorks. WF5 1JH

There are at least two digitisers available for the Sinclair Spectrum, one from the Dutch company Datacube, the other a home-grown product from Samat.

The Datacube digitiser, VideoFace, produces a 640x480 pixel display in four intensity levels. It can save a picture every 1/25 seconds, giving a continuous

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display, the six latest scenes of which can be saved to produce animation effects.

Images can be saved to tape, microdrive, or Beta disc. The software is menu-driven but doesn't offer many facilities for manipulating the monochrome image.

Product: Videature Mirror Spectrum
Price: £69 Supplier: DataShip, Ltd.
Wildenrath, 14, 2011 WC Goods, Holland,
or Romantic Robot, 77 Byre Road, London
N4 6JZ, 01-425 5533

The alternative is the Sonnet digitiser, which shows only 655 pictures, but which has sophisticated manipulation software.

You can alter the contrast, scroll around the image (which is bigger than the Spectrum's screen), save it to tape, microdrive or disc, and load it into various art software packages for further manipulation.

Because the 640x480-bit resolution of the image is actually higher than the Spectrum can display, it's also possible to pan the picture onto higher-spec machines to enhance the picture. The software is menu-driven, and the hardware is contained in a Compact-style box. The main drawback is the price.

Product: Sonnet Digitiser Mirror Spectrum
Price: £100-50 Supplier: Sonnet,
8 New Road, Parkham, Surrey GU10 1DP

We looked at the Hala digitiser for the Atari ST in the Feb 8 issue, so just a brief summary here. The Hala unit is manufactured by Prime Technik, and consists of the main unit, external power supply, monitoring lead to the ST's parallel port, manual and software. Despite the advanced graphics handling of the ST, the Hala digitiser seems to have every limitation. It can only handle solid



images, taking around two seconds to complete the scan.

There are four pull-down menus, which allow you to set the size, number of scan lines, zoom, invert, flip and print out. Lastly, and perhaps most interestingly, any of the ST's 409 colours can be assigned to the 16 shading levels of the image to create spectacular colour pictures.

Images can be saved in screen savings or as MacDraw/Doodle format, for later manipulation using the art packages available. Again, the major drawback is the price. At £200, the Hala device doesn't seem to offer any value for money. If the software were designed for more professional applications, it might be a different matter, but for something largely useful only for entertainment, or for creating illustrations for games, the price is unacceptably high.

Product: Hala Video Digitiser Mirror Atari 486 ST
Price: £200-95 Supplier:

Hala Systems Ltd, Pier Road, North
Folton Trading Estate, Folton,
Middx MK11 0TT

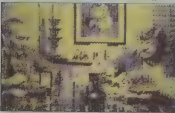
The Prime Technik video digitiser for the Commodore 64 is similar in many ways to the Hala ST version. It creates images at full 640x480 resolution, then allows you to zoom around the image, and use the function keys to assign any of the 64's sixteen colours to the four grey-scale levels of the picture. The Prime Technik 64 digitiser comes complete with a package of application programs on disc. These allow you to use the device as a simple security system, able to detect changes in a scanned picture, prevent them a video camera. Again, for best results the scanned image should be still.

Product: Prime Technik 64 Digitiser Mirror C64 (a Prime 608 Supplier:
Superbit, 01-801 1155

One of the most sophisticated digitisers for the BBC comes from Watford Electronics. It uses the full graphics capability of the BBC in modes 0, 1 or 2, and images can be compressed, stored on disc, and hard copied using an Epson-type printer. It mode 0 there are eight levels of grey available.

Each scan takes 1-6 seconds, and the black and white levels can be manually adjusted, set to automatic, or reversed. The manual includes information on driving the unit from Basic and using the images created together with Scan Disk and other programs, and the system software is provided on ROM.

Product: Watford BBC Digitiser Mirror BBC
Price: £66 Supplier: Watford Electronics, Jervis House, 290 Lutter Lane
Street, Watford, WD17 3YJ



Since the introduction of the Apple Macintosh, the mouse controller has been the backbone of user-friendly, state-of-the-art operating systems. Mechanically, the mouse is quite simple; it consists of a rolling ball which is moved over the desktop, mechanical or optical sensors to detect the movement and transmit it to the computer, and buttons to select options from the screen menu.

Of course, the mouse is only as good as the software it drives. Usually, this takes the form of a series of pull-down menus presenting all the available options, photographs called icons to select different functions, and windows which open up to allow subroutines to be called. A complete system of this kind, of course, goes by the names WIMP: Windows, Icons, menus (or mouse) programs.

Most home computers now have mouse systems specially designed for them. Unfortunately each system must have software at least specially for it; apart from the ubiquitous Atari ST and Commodore Amiga, there is no standardisation. So, when considering a mouse system, you must also take into account the software available for it.

The best-established mouse for the Spectrum is the AMS. Produced by AMS, it is very well supported by a range of sophisticated software products from AMS themselves, and from an increasing number of third-party software houses.

The AMS mouse is an unremarkable blackish design, with three distinct-sided microswitches and a non-slip rubber ball. It comes with a 1½ metre cable, connecting it via a 20-way plug to an interface which plugs into the Spectrum's user port. The interface also includes a Commodore printer port, but you can also use an RS-232C printer if you have the Rosetta Interface 1.

The three mouse buttons are usually configured as Execute, Move and Cancel.

Provided with the mouse is a package of art programs and applications featuring AMS Art has the usual windows and icons, with drawing tools including pencils, brushes, boxes, patterns, magnify,



The mousetrap

THE MOST USER-FRIENDLY SOFTWARE OFTEN USES WINDOWS, ICONS AND A MOUSE. BUT HOW DO YOU CHOOSE THE BEST MOUSE FOR YOUR MICRO? CHRIS JENKINS SNIFFS AROUND

point drawing area, the mouse can be used to produce very detailed drawings and technical diagrams. A gridlock facility makes it easier to produce precise lines with the mouse.

Also included is the Colour Palace program to colour your AMS Art pictures, and AMS Control, a sophisticated user interface routine. It enables you to create your own mouse-driven programs using ■ new basic commands. An icon designer, and two-demos, a calculator and a sliding block puzzle, complete the package.

The AMS Mouse can also be used with Bainbridge's Art Studio, Sells's Artist 2, and AMS's Superscript layout package; however, this last is only available for the BBC and Amstrad PCW models. ❖

Mouse: AMS. Price: £69.95. Supplier: AMS, Prospect, Worthington WA1 1BB. Tel: 0423 416555.

The major rival to the AMS mouse is the Kensington model. Designed by the well-known joystick interface manufacturers, this mouse looks sleeker than the AMS, with a slimmer body and two reversed switches. The Kensington Mouse comes bundled with a special version of Bainbridge's Art Studio, which is certainly one of the best Spectrum graphics programs. The Kensington mouse's cable terminates in a D-type which goes into the interface supplied.

The Art Studio really comes into its own when used with a mouse - like so many other programs. ■ You have a

microdrive and Sells's One you can also use the Kensington mouse with Sells's The Writer word processor, and the forthcoming Artist 2. Although the instructions provided with the Kensington mouse give complete user as much detail as those with the AMS device, it is possible to incorporate it into your own programs either in basic or machine code. Designing even and window routines would be another matter. ❖

Mouse: Kensington Palace. £49.95. Supplier: Kensington, 10 Oliver Court, Redford.

The latest offering from Sells, following that on the heels of the Compliment expansion system reviewed two weeks ago, is the Star Mouse. Cheaper and simpler than the Kensington and AMS devices, there are versions for the Spectrum and the G4.

Bundled with the mouse, which features one large click-top button, is the CAD package StarDraw. You can also use the mouse with the excellent word processor The Last North Ward.

On the Spectrum version of the software, there are numerous drawing commands available from the master screen, represented by icons on the right hand side. These can be moved to the left, or removed from the screen altogether if you wish.

Facilities are pretty standard: pen, block, lecture, ellipse, magnify, cut and paste, and five text styles. There's also an



circle, uppercase and lower. Together with the multi-text text facility, and the Sells optical which gives access to a 416 × 384

Espe-type printer dump routine.

Although the software compatibility of the Star Mouse is pretty limited, for the price it may be able to offer all you need. Amstrad and CBMS1 randoms are on the way. ◀

Mouse: Star Mouse Price: £48.95
Supplies: Bags, 2 1/2 flo. disk, Working Survey G121-427. Tel: 0850 33997.

The Commodore 64, with its high quality graphics and efficiency (it can speedily display systems, is one computer which is ideal for mouse applications. One of the best mice available is sold under a number of different names by Wiggins House, as the MS-5000, part of the Chess or Arnie 64 package, as the Star Mouse, with Chess; and also as part of the Commodore Commodore's Commodore, together with the Chess software, the Commodore-64, cassette and a bundle of games software.

The MS-5000 is a little gem of engineering, with a plastic wedge-shaped design, two big comfortable buttons, and a large non-slip rubber-coated ball. It clips into the 64's joystick port, and can in fact be used as a joystick if you power up the computer with the mouse's right hand button held down.

The Chess software package is an introductory graphics design program with a number of powerful features. It's dotted line, solid and empty polygons, reflections, fill patterns, and so on. It's possible to create excellent pictures very quickly and easily, but there are several limitations including text entry, undeleted patterns, colour of storage format and so on.

For the more advanced user the Arnie 64 software is ideal. This exploits the capabilities of the mouse to the limit, although sadly enough it doesn't use icons or windows, possibly because there are something like 30,000 different control combinations possible! Arnie 64 was delivered five weeks ago, and is arguably the best graphics package for the 64. Also on the way is a desktop WIMP program featuring a calendar, diary, clock, calculator, name and address directory and disk editing program, at £18.00. ◀

Mouse: MS-5000 Price: £44.95 with Chess, £59.95 with Chess and Desktop
Supplies: Wiggins House, 21 Savile Row, London W1X 1LS. Tel: 01 734 9985.

The MS-5000's major rival is the Gates Mouse, which is very good mechanically but suffers from a complete lack of outside software support. The hardware is very high quality, finished in an IBM

cream colour, and including three positive-action switches.

The graphics software included with the package operates in the flag mode, which severely limits your choice of colour colours, but which gives a high resolution comparable to that of Baudouin's Art Studio software. It is available in a software enhancement package which offers a higher degree of user control over mouse functions. ◀

Mouse: Gates Price: £48.95 **Supplies:** DEC, 14 Western Parade, Great North Road, Forest, Berks EN5 1LD.

As a business-oriented machine with all the makings of a top-class WIMP system - good monitor resolution, decent operating system, speedy disc drives - it's surprising that there isn't yet an established mouse package for the Amstrad PC5. Two companies are working on it, predictably, Kempton and AMS.

The Kempton mouse will be supplied complete with an appropriate interface, and a software package called Desktop. This is a GEM-type environment with graphic design facilities. Price is expected to be around £30.00.

AMS's package is intended to be part of a complete "desktop publishing" system. This somewhat phrase, better applied to higher-spec systems such as the Apple Mac (which can be interfaced to a laser printer), might not be appropriate to the PC5, but we eagerly await the opportunity to compare these two attempts to crack the PC5 mouse market. Full reviews coming as soon as possible.

Mouse: Kempton PC5 Price: £38.95
Supplies: Kempton, as above.
Mouse: AMS PC5 Price: TBA
Supplies: AMS, as above.

The cheapest mouse for the BBC is the Wiggins, again from Wiggins House. It is quite different to the MS-5000, a much heavier design with three switches. It's compatible with AMS's BBC mouse software, and with several packages from Wiggins: Cadmus, a sophisticated 3D design package with animation facilities at £29.95; The Artist (and to be confused with other programs of the same name), a powerful 3D4 program at £19.95; and a utilities package which allows you to produce colour screen dumps.

Also available for the Electron is the

Intermouse, with its own graphics program, Mousepoint. ◀

Mouse: Wiggins Price: £50 **Supplies:** Wiggins House, as above.

For an alternative, you are back with AMS for the 6047 version of their AMS mouse. This is among the best-supported home mice yet, with a 180 8000 offering windows, icons and pull-down menus in a variety of colour modes, the Super Art program in 8000 plus type or else, and icon designs, the Pageview layout system, the 3D Scene CAD package, and AMS databases, interactive examination programs, desktop packages, and more and more art programs. The basic package is £50 while the software add-ons are around £20 each. ◀

Mouse: DEC: AMS Price: £50 **Supplies:** AMS, as above.

With the advantage of a 68000-based machine with relatively large memory, any mouse for the QL would be expected to perform well. The Electron mouse is similar in appearance to the AMS, with three buttons, and a cable leading to an interface box which plugs into the computer's 30Pin port.



The software provided with the mouse, IRL, is a sophisticated WIMP desktop system, contained in ROM. From IRL you can load ARTICE, a powerful graphics program; IDELE, a menu-driven icon and window editor; and, with extra memory, any of the Price programs using the CBASIC multi-tasking program. Also available from Kidderly, as part of a combined program of mouse software development for the QL, is the Supermouse: similar mechanically to Wiggins's 6047 Wigginsmouse, but costing £28.95. ◀

Mouse: Kidderly Price: £38.95 **Supplies:** Kidderly, The Office, Hall Farm, 5, Oakley, Upminster, Essex. Tel: 0706 61667.

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Search for a Star

CHOOSING A PRINTER CAN BE A BAFFLING PROBLEM. JOHN LETTICE LOOKS AT STAR'S RANGE AND SUGGESTS A FEW ANSWERS

Among the relatively simple decisions of what computer to buy, trying to choose a printer is a job with a corner on something of a shock. Unless you have opted for an standard PC, which comes supplied with its own printer, there is very little guidance available on what to look for. There are, for instance, several types of interface, constraints, RS-232, and the machine specific Commodore Serial standards for a start. Then you have to decide whether you want a dot matrix machine, for speed at the sacrifice of quality, or a daisywheel for the opposite. Do you need a tractor feed printer to use continuous stationery, or a friction feed for single sheets? And is there anything to be gained from using a thermal printer?

Features

One solution to the problem is to get hold of a printer company's catalogue and work through its list of models, trying to select the one which does everything you need, but which has no superfluous features for which you need to pay. There are certainly things to be found. For instance, the star XL-10 is by no means the company's top of the range printer, but a look at the features might lead you to believe otherwise. It's at the price end of the consumer market at £237, but if you're looking for a flexible machine which will produce good quality output it's well worth thinking about.

It's sturdy and nicely designed, with a built-in tractor (rather than the flimsy clip-on variety), and taking the paper drives you the choice of sheet-feeding. The printer itself has no 'standard' interface, but instead uses modular cartridges that simply plug into the back. Parallel, IBM parallel, Commodore and Apple II are all £60 each (and is included in the printer price quoted above) while serial is £89. This kind of approach is handy from the manufacturer's point of view, and also gives you a certain flexibility if you want to change your mind.

As usual it's possible to vary the printer's modes by sending escape codes to it (depending on the interface used) but, many of the features are accessible from the front panel. This gives you bold, three width settings (the printer is technically 30 columns, but allows you to switch



The XL-10's interchangeable interface cartridges

between 80, 90 and 130 column printing) and NLQ (near letter quality) printing. It's also possible to set the printer to print in inches, and to vary the margins from the front panel (handy if you find your printout is crumpled up against one margin).

Print speed is a healthy 320 cps in draft mode, and 80 cps in NLQ, both perfectly adequate for most standard tasks, and overall the XL-10 is well worth considering if you do a reasonable amount of printing and want good quality allied with flexibility.

The STS-80 is a different kettle of fish altogether. It's a small 80 column thermal printer, with sophisticated features by the standard of thermals, but although the print quality is reasonable it's really geared to listings rather than correspondence.

It runs at 48 cps and features standard and enlarged modes (the latter 40 columns) plus a thick graphic and a bit

image mode. Line pitch can be varied, as can form length, and it has a full complement of dip switches. Essentially it's a low cost printer that happens to use thermal technology rather than dot matrix.

But there's the rub. At £285 the price isn't really low enough to make it a bargain compared to the cheaper dot matrix machines, which can be had for around £100, so its main selling point is in terms of noise - if you want something dead quiet then thermal's the right choice.

Daisy, Daisy

The more you move over might lead for a daisywheel printer, although if you're looking to relight the title of the *Starline* Star's PowerType probably won't fit the bill. It will make the annoying clumps change twice that daisies are famous for, but the cooling has been so well soundproofed that even in full flight it's

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The insurance here is very low (I don't actually have space insurance either like I used to have at Aigis). The *Shikoku* *Shiratsuyu* is a very small boat.

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really slow iteration.

It features dual parallel and serial interfaces, three volume wheels and a reasonably fast 18 cps printout speed. Paired with the impossibility of doing real-time NLQ type things on the basic paper Star has indulged in a series of bumps instead. There's a power lamp to tell you when it's switched on, a busy lamp to tell you when it's working, a ribbon out lamp, a word processing mode lamp and a software mode lamp.

Manhattan rhythm...

The word processing and software modes are intended to make the printer easier to use, the former being intended for one essential word processing program, while the latter is more suited to programming.

Output

As with all daisy the Power Type can't be used for graphics, but there is still a quality difference between dot matrix and daisywheel output, and if you're set on high quality output, for business letters and the like, then at £229 it's excellent value. Star also has a wide range of printers for it, so you'll at least have the facility to vary your text.

An £295 (the Canon LBP-10) is marginally cheaper than its closest rival

here, the Star NL-10. It has a great deal in common with the Star, having built in IBM and Epson compatibility, 120 cps draft mode and 18 cps in NLQ. Like the Star its interface is removable, allowing the machine to be used by a number of machines, including Commodores and Macs.

Modes

The control panel looks traditional, but also allows you to switch modes between pica, NLQ, italic, underlined, reduced and loop disabled (both via switches) by pressing either while holding form feed down. This sort of system is not of course, in that you don't have to move around with change codes - but you never really know where you are with them. It would be better if there was some kind of mode indicator on the front. NLQ is actually achieved by a slightly different method, which makes it more or less confusing depending on your point of view.

Still, even without better guidance on the modes the printer is good quality, and manages to come a fair way on 10 features as far as price. Another point worth taking into account is its size - it's by no means the smallest of printers, but it is relatively compact, which could be important if you're short of space.



Star's NL-10 is clean-cut

Deciding what facilities you need before you buy is a given time-saver, but remember that what you want a printer for (letters, word-processing, graphics or some specialised application like label-printing, it's a pretty important investment and you should choose carefully. ■

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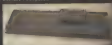
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1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

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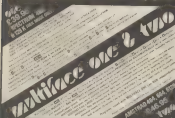
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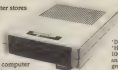
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Put money on a monitor

FOR BETTER PICTURE QUALITY YOU NEED A MONITOR. PETER WÖRLOCK HELPS TO CLARIFY THE ISSUES INVOLVED

In the days of the first microcomputers, you had no choice but to buy a dedicated monitor since none of the machines came with a TV module.

Later, just about all micros were designed to work with TVs and some, like the Spectrums, were not designed to work with a monitor at all.

Things are so confused now that you can buy fairly black boxes that will run computer monitors like the Amstrad and Commodore units *and* TV sets.

Dedicated

The reason for buying a dedicated monitor are many, depending on what you want to do with your computer system. In all cases, it saves spending the family by hijacking the TV on during *dishtime*.

Most monitors are capable of displaying 800x600 lines (provided that the computer has the capability) which is essential for word processing.

Microchassis monitors are oblong, then reflat, so if word processing is your main activity, a high-resolution black & white, or green screen, monitor might be your best buy.

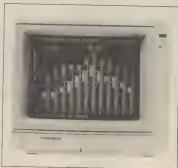
But most users want colour, and the main issue here is whether to go for RGB or composite video. Most of us don't have a choice, since most machines will work with only one kind or the other.

Composite video is cheaper but the quality of the colour display is not as high as RGB (Red, Green, Blue, the three separate colour signals).

Resolution

The main thing to look for when buying a monitor (apart from cost) is screen resolution - the number of dots the monitor can display. If you have a micro with high-resolution graphics, such as the Amstrad 51, you'll want a monitor that can display the graphics to their full effect. On the other hand, if you have a Spectrum or a Commodore 64, you shouldn't overinvest since you'll be buying a facility that you'll never use.

In terms of quality, one other thing you might look for is the size of the individual dots on screen, usually given as the number of dots per millimetre. The higher this number the better. For example, the Macintosh does not have a particularly



high screen resolution. The reason Mac graphics look incredibly sharp is because the monitor displays very small dots.

Finally, if you're a games player, make sure that the monitor you're thinking of

buying has a built-in independent Mod microchassis monitor, and quite a lot of colour models, don't. The models listed in the accompanying table are all colour, and all include a kioskholder. **4**

Model	Price (£+VAT)	Screen Size	Screen Resolution	Input
Falcom CM10	170	14	Med	Comp/RGB
Sanyo CCR100	190	16	Low	Comp
Philips CM500	230	14	Low	Comp
Thomson Video P4	230	14	Med	Comp
Thomson CCR6000 VPS	230	24	Low	Comp
Philips CM400	240	14	Low	RGB
Microrise CCR600	240	14	Med	Comp/RGB
Samurai CCR600	250	14	Low	Comp/RGB
Thomson CCR600 V	250	14	Med	Comp/RGB
Philips CM600	260	14	Low	Comp/RGB
Microrise CCR600	300	14	High	Comp/RGB
Philips CM600	310	14	High	Comp/RGB
Thomson CCR1400 V	320	12	Med	Comp/RGB
Microrise CCR600	380	16	Med	Comp/RGB
Thomson CCR600 V	380	14	High	RGB



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Take the HL-80 for example. You need to choose a printer that's compatible with the computer you're using today and the one you might upgrade to later. With the HL-80's modular interface that's no problem, just select the interface you need when you buy the printer. If you need to change later it only takes a moment to swap the cartridge over.

You'll want to choose a printer that's easy to operate. On the N series printers Star have all but done away with those fiddly little DIP switches. Almost every control you need for daily use is on a single touch panel. Select print, copy, character size, margins and a host more options without even having to lift the lid.

You want to choose a printer that looks after all your paper requirements; tractor, single sheet or multiple copies. The HL-80 has tractor feed as standard for continuous printing and an automatic single sheet feed to make letterheads really easy. There's even the option of a optional cut-sheet feeder.

Your ultimate choice is print quality. Print quality isn't often expected of dot matrix printers but the HL-80 provides it as standard. Whether you're printing at 300dpi in draft mode or 600pi in Near Letter Quality, every character is crisp and clear. And the range of character options is unbelievable.

Star is making it easier to choose the right printer when it comes to connect and backup. Our pedigree is inherited from many years in the manufacturing of precision machine parts and a long history of producing computer printers. This means you can rely on Star's wealth of experience in advanced design and manufacturing.

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Communications data

DAVID WALLIN GIVES SOME POINTERS
ON BUYING COMMUNICATIONS HARDWARE
TO MATCH YOUR NEEDS

After a joystick, a MODEM is now probably the top peripheral people consider purchasing for their computer. This is mainly due to recent price drops. A modem can now be bought for under £50. Printers, disc drives and other such peripherals (even a mouse) all have starting costs over £50 and usually in excess of £100. Modems can cost well over £100 (the Pace Series 1 modem that I use costs £140 and isn't even the top of the range model), but if you want to get into computer communications cheaply, then it can be done for under £50 quite easily.

Firstly, I'll explain what the modem is. It's the bit that goes between a computer and the phone line and enables one computer to talk to another (provided both use appropriate modems and software).

The two main things to look out for on a modem are the range of speeds (the more - the better) and the presence of auto-dial/answerer.

Specific

Modems, to see over the telephone lines, fall into 3 categories: machine specific (such as the Commodore modem and VTX 4000 for the Spectrum), general use modems (such as the Voyager II) and intelligent modems (such as the Teletek and the Series 1).

The machine specific modem, is one designed for use with just one computer or a range of models of the same computer (e.g. MS Spectrum, MS Spectrum, Spectrum + and Spectrum 128).

1) For the Commodore 64 there's the Commodore Modem, currently available free from Compaq with every one-year subscription (some data software costs £10.00), and the Miracle Multi-Modem 64 which costs £30.

2) For the BBC there is the Demos (Waltham Consultants) which costs about £50, the Magic Modem from DataStar which costs £80 and the Winton Electronics Le Modem which costs £58. Personally, I would advise the Le Modem for a first time buyer as it is very easy to use.

3) For the Spectrum there's the Modem House VTX4000 which costs £30. This modem lacks features and the software is Viradate (Prodat, Datasat or Home etc.) only, but it is still a good modem, and my personal choice for a Spectrum owner's first modem (unless, of course).

4) For the Amstrad PCW's there's the KDS Communications 5500 which costs £100 and the Amstrad modem from PACE which costs around the £100 mark.

In general these are the cheapest modems, and often cost nothing (only £20 or £30 have features that, on the other two types of modem, would cost over £120 or £150).

Next, on to the general modems. Usually, these will work with most computers, but often require special software to do so. These are modems such as the Voyager I and II from Modem House (£50 and £90 respectively) and the Voyager from Miracle Technology which costs £100. This class of modem is probably the most common and the modems generally range from £70 to £150 in price, depending on features.

Intelligent

Personally, I don't like these modems much, I prefer the machine specific or intelligent ones. This is partly a personal preference, and these modems work as well as the other two types.

Lastly, the top of the range modem is the intelligent type. These start at about £150, and go into the low £1000s. They work with a VAX computer (provided it has an RS232C/Serial port) and require no special software. Many commercial software packages with communications facilities will drive what is called a Hayes modem. Hayes is a standard command set; other command sets include VZM and DuCom.

This is my favourite type of modem mainly because they are all similar and easy to use. Unfortunately, they cost a lot. About the cheapest is the VSA4000 from Miracle Technology. This is about the best modem that you can get, either as your first one or as a replacement to present one. For under £150, it offers 300, 9600 and 1200/75 speeds, auto-dial and answer and is upgradeable.

Approval

All that remains is to sum up how you go about choosing and buying a modem. If it's to be your first then a machine specific is usually the easiest to use. If you can afford it, an intelligent modem such as the VSA4000 is a good choice. Look out for as many features as you can get for as low a price as you can find. Buying second hand is a good idea. If you can get a suitable modem. Lastly, remember that it is illegal to use an unapproved modem on the phone lines! ☐



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4. Conclusions

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transcripts, and a differential expression analysis was conducted.

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where x and p are the text co-ordinates and n is the number of the line. The fonts are as follows:

- 1 - upstroke down
- 2 - left downstroke motion
- 3 - right downstroke motion

- 4 -- lower left
- 5 -- lower right
- 6 -- absolute height
- 7 -- quadrupole height
- 8 -- quadrupole radius

As the rest of the testing is completed, you will get instructions for the character expander will be given then. If you want a copy of the program that sends a tape plus CD to R. Owens, 108 Maple, Welton, Garden City, Mo. 648 10-10.

[illegible]

Pace

Graham Cook

Are you getting in the miles for the next London Marathon, or simply acquiring enough fitness to see you safely through those all night programming sessions? Either way Pace will help you.

You input the distance and and the time taken and get back your pace. You can then check out what equivalent time that



pace would give you for any other distance. Anything around 8-2 minutes is

running the 10km and 20-2 minutes you down in a fellow marathoner.

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10 REM ***** PACE *****
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Programming: C64

U.F.O.

Steven Pastullo

Huge alien space stations are showing up on your home planet of Q64. You must fly your spaceship over the space stations and destroy

the nucleus at the end with your one photon megagunster device to stop the landing invasion.

However, defending satellite pilots will attempt to ram you and you are not allowed to leave the deck of the station, which is unfortunately because on level levels it is a strangely shaped and you

won't know the configuration of the near screen until you appear on it.

Then, very long listings, with superb 'hardcore' graphics, will be published every four weeks so if you don't want to type it in issue T2 or £1.50 plus editorial to Steven Pastullo, 34 Northfield Road, Wilmslow, Cheshire WA14 0JY.

Listing 1

```

10 PRINT "C64"
20 FOR I=0 TO 255
30   FOR J=0 TO 255
40     PRINT "C64"
50   NEXT J
60 NEXT I
70
80 PRINT "C64"
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950 PRINT "C64"
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990 PRINT "C64"

```

```

1000 PRINT "C64"
1010 PRINT "C64"
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1070 PRINT "C64"
1080 PRINT "C64"
1090 PRINT "C64"
1100 PRINT "C64"
1110 PRINT "C64"
1120 PRINT "C64"
1130 PRINT "C64"
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1160 PRINT "C64"
1170 PRINT "C64"
1180 PRINT "C64"
1190 PRINT "C64"
1200 PRINT "C64"
1210 PRINT "C64"
1220 PRINT "C64"
1230 PRINT "C64"
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1250 PRINT "C64"
1260 PRINT "C64"
1270 PRINT "C64"
1280 PRINT "C64"
1290 PRINT "C64"
1300 PRINT "C64"
1310 PRINT "C64"
1320 PRINT "C64"
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1610 PRINT "C64"
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1770 PRINT "C64"
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1790 PRINT "C64"
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1860 PRINT "C64"
1870 PRINT "C64"
1880 PRINT "C64"
1890 PRINT "C64"
1900 PRINT "C64"
1910 PRINT "C64"
1920 PRINT "C64"
1930 PRINT "C64"
1940 PRINT "C64"
1950 PRINT "C64"
1960 PRINT "C64"
1970 PRINT "C64"
1980 PRINT "C64"
1990 PRINT "C64"

```

Listing 2

```

1 POKE 32768+22,24 POKE 32768,10 POKE 32768,1
2 POKE 32768,5 POKE 32768,5
3 POKE 32768+22,24
10 PRINT "C64"
20 POKE 32768+127,POKE 1,0
30 POKE 32768,POKE 32768+127
40 POKE 1,55 POKE 32768+127
50 POKE 32768,1
100 FOR I=0 TO 255
110 FOR J=0 TO 255
120 POKE I
130 POKE -14755+POKE I,J
140 NEXT J
150 FOR I=0 TO 255

```

continued page 67

The best selling Computer Game is now available for the New Generation. Don't Get Mad - Get Even!



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on all items
Specimen 10 1000 0000 0000
RBC S.E. Marine Research Corp.
Cape Cod, Mass.



YOUNGPLAYERS EDITION - OUT NOW



PROGRAMMERS GAMES DESIGNERS REQUIRED

In the past eighteen months Palace Software has gone from strength to strength as a developer and publisher of computer games. Our games *Cauldron* and *Cauldron II* have been major hits around the world and our latest release – *Antaroid* – is now being released to fantastic critical acclaim.

Behind the scenes we are busily working on a series of exciting new projects for release during 1987 and we are looking for new people to join the Palace Team.

Full-time programmers

We are expanding our in-house team and are looking for up to three programmers to join us. The work involves working alongside some very talented games designers – artists and musicians – on development machines.

We are particularly looking for people who have at least some experience in Z80, 6502 (or similar) machine code. You will need to be reasonably experienced in the subject but not necessarily at professional level.

The jobs are based at our Central London offices. Salary will be based on previous experience. In addition a royalty is paid on sales of games. Applicants should be at least 19 years of age.

Freelance programmers/designers

We are very interested in publishing games written and programmed by freelance design and programming teams.

You will probably be working within the business with involvement in games already published by other companies and may want to further establish your name and reputation. You will need to have the experience to see projects through from initial idea to finished programme.

If you feel you are a talented and experienced programmer/designer – working on an individual or a team – with winning and original ideas, we would like to talk to you.



**PALACE
software**

In either case phone Pete Stone at Palace Software on 01-278 0731 and tell him all about yourself.

200	FOR #= 99 ?	1040	DATA 250,2-12,40,170,0,254,0
204	READ X	2020	DATA 170,170,145,145,125,125,105,105
208	POKE 114330+H*40,X	2022	DATA 170,170,80,80,80,80,80,80
240	NEXT H,H	2080	DATA 165,165,165,145,145,145,145,145
300	FOR #=1 TO 32	2022	DATA 171,175,95,95,95,95,95,95
310	FOR #=1 TO 7	2082	DATA 95,95,95,95,95,95,95,95
320	READ X	2010	DATA 95,95,95,95,95,95,95,95
330	POKE 114330+H*40,X	2012	DATA 95,95,95,95,95,95,95,95
340	NEXT H,H	2014	DATA 165,145,165,145,167,145,171,255
400	FOR #=0 TO 50	2016	DATA 16,16,16,16,165,167,165,165
410	FOR #=1 TO 7	2018	DATA 65,65,65,65,65,65,65,65
420	READ X	2020	DATA 165,167,167,165,167,167,167,167
430	POKE 114330+H*40,X	2022	DATA 145,145,145,145,145,145,145,145
440	NEXT H,H	2024	DATA 170,171,150,151,151,151,151,255
1000	DATA 32,64,65,65,150,150,150,0	2026	DATA 0,0,0,0,0,0,0,0
1002	DATA 254,130,132,134,132,130,152,0	2028	DATA 170,170,175,175,175,175,149,95
1004	DATA 240,4,120,120,120,132,594,0	2030	DATA 169,165,145,145,147,145,145,145
1006	DATA 254,120,130,130,130,130,152,0	2032	DATA 155,155,145,145,145,145,145,145
1008	DATA 252,7,120,184,130,134,104,0	2034	DATA 255,255,65,65,65,65,65,65
1010	DATA 20,32,64,92,120,120,150,0	2036	DATA 254,250,90,90,90,90,90,90
1012	DATA 240,4,130,120,130,130,140,0	2038	DATA 90,90,90,90,90,90,90,90
1014	DATA 0,0,10,30,130,130,130,130,60,0	2040	DATA 90,90,90,90,90,90,90,130
1016	DATA 254,0,0,0,0,0,0,0	2042	DATA 65,65,65,65,65,65,170,170
1018	DATA 130,130,130,130,130,132,130,0	2044	DATA 245,245,245,245,245,245,245,170
1020	DATA 130,130,120,120,130,140,170,0	2046	DATA 245,245,245,245,245,245,245,245
1022	DATA 140,132,140,140,140,140,140,0	2048	DATA 0,0,0,0,0,0,130,130
1024	DATA 170,140,130,130,130,130,130,0	2050	DATA 65,65,0,0,0,0,0,0
1026	DATA 40,60,130,130,130,60,40,0	2052	DATA 70,70,70,70,240,240,240,240
1028	DATA 184,130,130,132,184,120,120,0	2054	DATA 254,254,180,180,180,254,254,0
1030	DATA 40,60,130,130,140,70,40,0	2056	DATA 24,24,24,24,24,24,24,0
1032	DATA 184,130,130,150,144,150,132,0	2058	DATA 254,254,0,254,190,254,254,0
1034	DATA 524,64,40,12,0,4,240,0	2060	DATA 750,254,14,254,14,254,254,0
1036	DATA 254,2,10,10,10,10,10,0	2062	DATA 190,210,210,254,254,210,210,0
2000	DATA 130,130,130,130,130,130,130,0	2010	DATA 254,254,190,254,0,254,254,0
2002	DATA 130,130,132,132,130,0,240,0	2012	DATA 190,190,190,254,190,190,254,0
2004	DATA 130,140,140,140,140,140,140,0	2014	DATA 254,254,170,170,2,0
2006	DATA 130,90,40,10,32,70,132,0	2016	DATA 254,254,190,254,190,254,254,0
2008	DATA 170,130,20,20,2,0,2,0	2018	DATA 254,254,190,254,254,254,254,0

Programming: Amstrad PCW

Card Index

Own Tech

Continuing on from last week, the main menu is now displayed. Most of the options are self-explanatory. However, the option is beware of entering a file beyond the capacity of the disc. The calculator from

many records you can have up to this format:

No. of records = disc capacity / 1000
total record length

Where disc capacity is 1770 for Drive A, and 7680 for Drive B, and total record length is the sum of each individual field length.

Always exit the program by using option 0. Just otherwise information might be lost.

To use the program it is necessary to load CRYPT and then READ before entering the using.

Should you not want to type it all in send a formatted disc and £2.50 to Alan Tait, 4 Western Road, Chingford, London E4 8BQ.


```

8040 GOTO 1
8050 PRINT "Welcome to PCW"
8060 IF (A$="N") THEN GOTO 8070
8070 PRINT "Please enter your name"
8080 INPUT A$
8090 PRINT "Hello " & A$
8100 GOTO 8040
8110 END

```

```

8120 PRINT "Please enter your name"
8130 INPUT A$
8140 PRINT "Hello " & A$
8150 GOTO 8120
8160 END

```

```

8170 PRINT "Please enter your name"
8180 INPUT A$
8190 PRINT "Hello " & A$
8200 GOTO 8170
8210 END

```

Programming: Spectrum

Championship Bowls

Colin Speed

Here's the final part of bowling being Type in the first loader, run it and

correct any errors in the data. When the code is finite then the program will save it to tape.

To run the game the following line should be entered - Clear 80000 Load 80 Code Randomise On 80000

```

8010 PRINT "Please enter your name"
8020 INPUT A$
8030 PRINT "Hello " & A$
8040 GOTO 8010
8050 END

```

```

8060 PRINT "Please enter your name"
8070 INPUT A$
8080 PRINT "Hello " & A$
8090 GOTO 8060
8100 END

```

```

8110 PRINT "Please enter your name"
8120 INPUT A$
8130 PRINT "Hello " & A$
8140 GOTO 8110
8150 END

```

Invert

D Nash

This program for the Spectrum will invert the entire screen, that is change every bit pixel in Player and vice versa. The program also includes a routine to copy the whole screen (not just the top 32 lines) to any pointer using the Ramcopy routine. If this is not required leave out line 210.

```

40 LET address=65000
50 LET a=0
60 READ b
70 IF b=999 THEN GO TO 110
80 POKE a+address,b
90 LET a=a+1
100 GO TO 60
110 PRINT "All data inverted. Use RAMCOPY
120 USR 65000 to invert screen."
120 IF a=32 THEN STOP
130 PRINT "Use RAMCOPY USR 65004 for
24 line copy."
140 DATA 220,197,213,33,0,64,0,192,197,
6,92,136,47,110,35,14,260,193,16,264,209
,193,225,201
210 DATA 243,6,193,33,0,64,195,178,14
220 DATA 999
    
```

Code Send

M C Ogier

This is a procedure for the QL designed to make the sending of codes to the printer far easier.

Character 4 is assumed to be opened to the printer before the procedure is called. It can be used in various ways as follows.

For "ESC" or for "ESC" or for "ESC" will all send codes 41 via the printer to produce emphasised text.

```

100 REMARK M. CHARLIE OGIER - GURNEY 1986
110 DEFine PROCEDURE SET(p#)
120 LOCAL a$,h,y
130 h=1:y=1
140 p$=p$+"."
150 REPEAT loop
160 IF h=LEN(p$) THEN EXIT loop
170 REPEAT find
180 IF p$(h)="-" THEN EXIT find
190 h=h+1
200 END REPEAT find
210 a$=p$(y TO h-1)
220 IF a$="ESC" OR a$="esc" THEN LET a$="27"
230 IF CODE (a$(1))>=48 AND CODE (a$(1))<=57
240 PRINT#4;CHR$(a$);
250 ELSE
260 PRINT#4;a$;
270 END IF
280 y=h+1:hoy
290 END REPEAT loop
300 END DEFine SET
    
```

Shaded Shapes

D G Newth

These two procedures for the QL fill an area, circle or rectangle, with cross hatching.

Shape Circle requires the programmer to specify x and y the centre of the circle, r radius and i separation of shaded lines.

Shape Box requires x,y position of bottom left corner of the box, w and y (the size of the sides of the box) and r (in pixels).

```

10 DEFine PROCEDURE ShadeCircle(x,y,r,i)
110 LOCAL c,x,y,z
120 c=r/i/255
130 FOR x=-r TO r STEP c
140 FOR y=-r TO r STEP c
150 z=(x^2+y^2)/r^2
160 z=INT(z*255)+5
170 LINE x,y,x+y TO x-y,y+z
180 NEXT y
190 NEXT x
200 DEFine PROCEDURE ShadeBox(x,y,w,h,r)
210 FOR x=x+r TO x+r STEP c
220 c=INT(y/255)+5
230 IF x=INT(x/255)+5 THEN
240 IF y=INT(y/255)+5 THEN c=INT(y/255)+5
250 LINE x,y TO x,y
260 NEXT y
270 END DEFine ShadeBox
    
```




So much more for your 64

Mark Jenkins expounds on the Expander and answers some of your letters

The Commodore 64 remains one of the most popular music machines, simply because the choice of high-quality add-on hardware is so great. Commodore's own models, the FM Sound Expander and Keyboard, are justifiably popular, although from the time the Expander was first launched, the call has been for a software package which made a possible to add its synthesiser sounds.

The wait is over, because the FM Edition Composer is now with us. This disc allows you to compose polyphonic music, to add it to assign MIDI channels for its playback, and to create new sounds to play it with.

The Composer section opens with a double music menu which allows you to choose a key signature, tempo, voice to be used and so on. Notes are then programmed using the computer's keyboard or the Commodore music keyboard; you can enter one note at a time, and add notes, copy blocks and so on.

The FM/Midi page assigns each of the eight FM voices plus processors to a MIDI channel and decides whether you want to clock the music internally or externally (i.e. from a MIDI drum machine). There's a nice set of 64 internal FM voices which are far superior to the original set, and you can save and load music and voices.

The whole editing software is separate on the disc, and the setup facility allows you to choose an upper and lower sound, shift point, transposition, percussion solo/off and MIDI solo/off. After that stage you go on to the Edit page program, which has bar graph displays for Envelopes, Drums, Pitch 1 and 2, Waveform 1 and 2, Tremolo and other parameters.

The drum machine section allows you to create a file from a collection of sounds, and write patterns on a graphical display at a single bar. There is also a rather wonderful Print Machine section, which monitors up sounds at random and gives you the opportunity to add them into something really useful.

Overall this package is a very valuable addition to the FM Sound Expander. Not only is it a compulsory purchase for existing Expander owners, it's also going to make the whole system much more attractive to potential purchasers who found the original set a little limited.

A pity that the sound editing facilities are so basic — they do give you a lot of

possibilities, but nothing on the scale of the 147 sound parameters offered to users of the DX2. Still, you can't have everything.

The Sound Expander has cropped up in several readers' letters recently, notably one from Steve Bell of Durham who takes exception to our basic classification of more musicians into three categories — beginner using sound disc software, intermediate users splashing out on add-on hardware and keyboard, and advanced composers using MIDI interfaces and samplers/synthesizers. Steve said a Commodore Sound Expander and sampler in favour of a Caste C21000 synthesiser and Roland TR808 drum machine, but continued to use the C64 with a Datal



64k Sound Expander

Midi interface and Rasteb Advanced Music System software. While the software plays the synth, the drum machine plays itself, and Steve plays guitar.

Steve's new looking for a sequences package with a similar graphics input matched to the Rasteb and steps into none other as well as real time. Unfortunately we don't know of such a package which supports MIDI as yet — most MIDI packages are clear of scoring music staves because of the vast amount of information involved in controlling polyphonic tracks.

However, Steinberg's Pro 16 (on disc or PROM) will record in real or step time, and you can transfer its files to the TWS Note Editor for transcription. Alternatively you can get beat all C64s, which is the most powerful C64 composition package about at the moment, although it doesn't offer musical notation.

Steve suggests an exchange scheme for users of certain software packages, so if anyone would like to exchange files (together with notes of what type of sounds can be played by what channels) we'll be happy to put you in touch with

each other. Steve also asks about where music suppliers for chart material, and Music Sales are distributors of the Commodore Expander) are probably the best bet here.

A brief letter from Neil Bellin asks where drum packages are compatible with the Commodore Sound Expander. The answer is, of course, none — is that you can't run any C64-based drum package at the same time as Expander. The Tron Drummer probably has the edge on Datal Drummer otherwise, so your solutions are to buy a second music to run one of them, go for a dedicated drum machine such as the tiny and inexpensive Roland QD-200, or add drum sounds using the FM Edition Composer distributed above.

And a Mr. Angle of Stoke Newington wonders whether the Caste C22000 worth any not be a better buy than the C21000 for computer control. Well, the 2200 is a little more expensive in most places, but has an excellent programmable PCM-sampled drum machine built in. It offers 193 synth sounds, of which only the last four can be re-programmed, and then only using C2 editing software from Steinberg, Joseph or similar. It has eight voices, can play four different music voices on different MIDI channels in solo mode, and in fact sounds exactly the same as the C2101. But you can't save the PCM drum sounds to a music file (you can save the patterns to tape however, and can make up synth drum sounds which can be saved to the wave and mixed with the drum machine itself). So overall, the main factor in choosing between the 2200s and the 2101 is whether the drum machine is important to you, or whether you'd prefer to keep it on-board your music by using a Tron Drummer, Datal Commodore or FM Sound Expander.

Steinberg, The Spendable Centre, Chertsey, Surrey GU31 3PL, 0688 611333. Music Sales, 70 Newgate Street, London EC1A 3LA, 01-4031 1845.

If you have any queries or tips for the column, please write to Mark Jenkins at Popular Computing Weekly, 12-13 Little Newington Street, London EC2M 7TP. Mark would also welcome examples of your own music on audio or program tape or disc.

The public domain of communications

David Wallin answers electronic and snail mail from readers

Today I've got three answers for you. Since we're letters that have been sent in and some to queries left on ProNetnews.

For those of you who don't know about ProNetnews, it's a worldwide board which specialises in astronomy. It also has a Popular Computing Weekly section where I can be left questions, comments, etc. Answers will be posted on the board as soon as possible. Contacting me via ProNetnews is much much quicker than by post mail, and for Londoners it may well be cheaper. The number of the board is 01-358 7177, 'viewable' format. To reach the section type '006' at any time or select option eight from the main menu.

Someone who goes by the name of Bill has left a question asking for information on the availability of locating Modem type 00 software for the Spectrum. Just assuming that you have a VT330000 modem, Modern House has two packages, VTX P28 which needs CT and gets Accu emulation and VTX reg-user which needs CX and it for the 12-

user communications at 1300/1300 baud duplex.

Both are supplied on tape, and Modern House's address is 70 Longbridge Street, Essex, Devon EX4 8AP. Modern 800 also has Accu terminal emulation software available for download, which is free of charge if you are a member.

There was an org name on Accu which was a package available from Stephen Adams who runs the Spectrum Astronomical Board, the number of which is at the bottom of the article. It may no longer be available, but contacting Mr Adams will enable you to find out.

Next, Mike Lark wants to know where he can get JModem or Modern 7 (public domain communications software) for the Amstrad CPC 6128 and configure it to work with the Orion Press interface. JModem is available for the 6128 under the name of CPC6127.COM. However, I don't know how you could configure it for the Orion interface and hardware modifications to the interface may be necessary.

If you want to try, the software is



available from the public domain Software Boards, but unfortunately most of these are not videotex systems and I would assume that you only have videotex compatible software. Two boards with Amstrad software which are videotex compatible are the Dark Crystal and the London Uniting card. Their numbers are 01-954 8847 and 01-883 0188 respectively.

A new piece of PD comm software available for the CPC 6128 is Mox - Modern Executive. This is very powerful as PD comm software goes. It includes a form of JCR/Tasks and can run a CP/M application which involves without causing a disconnect. I hope that one of the two programs will be of help. Mike, it was up to the know and I'll dig further.

Phil Rapp wants to know if Dragon running software is available? Yes, it is. Modern House does a cartridge for videotex comms in C35 and Teletext has an Accu and videotex microchannel-only cartridge for C45. So, yes, you can still communicate on the Dragon.

Amstrad communications package released

Not news for Amstrad PC1612 owners, and those who would like to join them if they could get hold of a machine.

Digital Research has launched a communications package, specifically for the machine, running under Gem.

DR, producer of the Gem software system, commissioned the package from Weiss, author of the highly acclaimed Macintosh program of the same name. Gemcom is stuffed with features, all of them conforming to the Gem standard.

For example, you can create log-on files for any on-line service such as ProNet, Teleport Gold, or US services like Compuserve.

These files hold the telephone number, your password and ID number, baud rate and other protocols.



You give each one a name, then software in which you want to connect to the service you simply enter the name and off it goes while the PC does all the work.

You can compose messages, telefax and videotex frames off-line, as well as grabbing frames and text while on-line as you can in Sprint. Chances later. Don't's full help documentation needs down.

There's also a phone log (pictured here) which keeps track of all your comms activity.

At only £89.95, including VAT, it looks like outstanding value for money. It should be in the shops now.



A thousand years of stalking the King

Martin Bryant discusses the myriad ways to check-mate, self-mate, help-mate...

This week I will take an interdisciplinary look at chess: problem solving, and the role computers play in this fascinating field. Reviews of the complexity of the subject, and chess, come in completely in one article, so I will look at the curious best programs and various studies of solving ability in future weeks. I will spend 1500 years on the history of chess problems and the basic concepts.

It is known that some mathematician collections were made over a thousand years ago. However, in the early days, there was little differentiation between problems and composed enigmas. Up to the last century the solutions were mainly a series of clues with many sacrifices – the type of reasoning that would be considered brilliant in real games. Nowadays the solutions are much less obvious, probably involving an obscure move or two.

So, to the basics. What exactly are chess problems? There are certain conditions which problems must satisfy to be considered "correct". The most important is that there be one – and only one – solution. If a problem is found to have more than one answer it is considered spoiled. The exact form the problem takes is open to wide variation, though. Unless you have done some study of the field, you would probably be surprised by the range of weird and wonderful types of problems devised to test the chess enthusiast's brain (and the computer's CPU). Apart from the normal "Mate in N" category, there are such things as self-mates, help-mates, permutations, and even "fair" mates. The last group involves "adversarial" pieces which can cause an opponent's king to attack their own king! Some other problems have been designed which actually involve over 100 moves!

Let us first look at a simple, normal mate. Why is it so much faster and chess-master Black against any defence in two moves (see diagram one).

This problem is taken from the "Stous Soccer" (Good Comparisons) man-



Diagram one (above): the moves to where chess mate.

ner, which is one of the earliest known collections of chess problems, printed around 1266. The solution is 1 Rb1-g1? Whatever Black does next, White has a checkmate two moves. Many computer chess programs available today have the ability to solve problems of this nature. Their speed may vary greatly, though, and if a program takes more than a couple of seconds on a "Mate in 2" it is probably not worth the item it is in. Also, the best programs are able to

search for multiple solutions, not just the first one it finds.

Now let us try a self-mate. Here the side having first does not checkmate the opponent, but leaves the opponent to checkmate him instead. So, in this next problem White is to move first and force Black to checkmate in two moves (see diagram two).

The first move of the solution is 1 Qd8-b4. Move Black has to reply so avoid mating White, eg. 1... Qd8-b4, 2 Rb1-b2+, forcing Qd8-b4 Checkmate.

Help-mates are the opposite to self-mates. Here both sides cooperate to make the first side to move. Just take a chess board set up in its opening position and

it is a helpmate in two. Look back at "Poor's Mate" 1. Qd8-b4, 2. Rb1-b2+, 3. Qd8-b4 Checkmate. This brings me to the tale of computers in chess problem solving.

If problem designers had more than one solution to their problems, they will select a set of the major solutions first, then eliminate. At this point a computer program can be of great assistance. Instead of having three hours for hours to be "reasonably sure" (and then not certainly the only one solution would, they can just get the program to search for all possible solutions, and usually the problem is necessary.

Some people consider using programs to solve problems pointless because it takes away the "pleasure" of finding the solution. I disagree. I am much too lazy to plough through hundreds of problems, writing them out myself. Even if I did up the answer, I sometimes cannot relate some variations without considerable effort. By using a program to analyse without time, I can appreciate quality and verify the beauty of the problem and the ingenuity of its author. Also studying hundreds – perhaps thousands – of problems with the help of my programs I have an appreciation of chess problems I would never otherwise have had, and a great respect for the authors' ability to create such ingenuity on a chess board.

Diagram two (below): the tricky self-mate.



1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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New Releases

John Cook looks through this week's new arrivals

Amstrad CPCs

Program Time Copia Type
Arcade Price £1.99 Micro
All Amstrad CPCs Supplier
Code Masters, 1 Deacons
Business Centre, Deacons
Close, Banbury, Oxon OX16
7HT



Program 100 Type Simula-
tion Price £2.99 Micro All
Amstrad CPCs Supplier
Mastertronic, 9-10 Paul
Street, London EC2

Program Oliver Rode Type
Arcade Adventure Price
£8.95 tape, £13.95 disc Micro
All Amstrad CPCs Supplier
Quicksilver, Victory
House, Leicester Place, Lon-
don WC2H 7PL

Program Jungle Jinx Type
Arcade Price £2.99 Micro
All Amstrad CPCs Supplier
Bug Byte, Victoria House,
Leicester Place, London
WC2H 7PL

Program Answer Book Junior
Cds Type General knowl-
edge Cds Price £8.95 tape,
£13.95 disc Micro All Am-
strad CPCs Supplier
Enigma, 1 Pym's Close, Har-
rogate, Doncaster, Sns LS18
4LX

Program Cap-Cut Type Arc-
ade Price £8.95 tape,
£13.95 disc Micro All Am-
strad CPCs Supplier Micro-
Cam, Unit 15, The Watson
Centre, Western Road,
Bucknell, Sns RG12 1BW

Program Day Sack a Million
Type Strategy/Adventure
Price £8.95 Micro All Am-
strad CPCs Supplier Adver-
sant, 68 Long Acre, Covent
Garden, London WC2E 9JH

Atari XL/XE

Program Los Angeles SWAT
Type Arcade Price £1.99
Micro Artn 8000XL, 130XL
Supplier Entertainment
USA, Hemmings, address
as above



Program Chinton Chase
Type Arcade Price £2.99
Micro Artn 8-bit Supplier
Bug Byte, address as above

Program Arc is Ready
Type Arcade Price £1.99
Micro Artn 8-bit Supplier
Mastertronic, address as
above



Program Heart of Africa
Type Graphic Adventure
Price £14.95 disc Micro
Commodore 64/128 Sup-
plier Anderson, Long Acre,
Covent Garden, London
WC2

Infocom is the top US
adventure label, and Epic
the undisputed leader in
action games. Electronic
Arts must be top of the
strategy league.

Following its earlier master-
pieces, *the Arabian Seven*, *Cave*
of Gold and the brilliant
Bar's Tale last Games this
week, comes *Heart of Africa*.
Like other Electronic Arts
products, it is distributed here
by Anderson. And it's well up
to the now-expected high
standard.

It has a lot in common with
Seven Cities, but there are
many differences apart from
the obvious shift of scenery.

You have been chosen to
unlock the secrets of African
explorer Hiram Perdue's
Pitman. But to get the houses,
yards and bank accounts

Atari ST

Program Winter Games
Type Simulation Price
£24.95 Micro Artn ST
Supplier US Gold, Unit 2 and
3, Holford Way, Holford, Ber-
mingham B5 7AN



Program Mountain Type
Role-Playing Adventure Price
£24.95 Micro Artn ST
Supplier Strategic Simula-
tions, via Siles Way, 1-4

A hearty game

you have to complete his
life's quest to discover the
lost tribe of Pharaoh Ansh
Ansh.

The natives are more or
less hostile, the wildlife al-
most unanimously hostile,
and your expedition will con-
front with disease, starvation,
warring tribes, falling dis-
asters, and sundry other
hazards.

The investigations and
extra funds when discoveries
are made and the excitement
of exploration and a good
detective story.

It looks like another winner.



The Mound, Hatherley Road,
Salway, Rye DA14 4QZ

Program War Zone Type Arc-
ade Price £19.95 Micro
Artn ST Supplier Paradise,
49 Hodes Avenue, London
M20 4UE

Program ST Answer Type
Arcade Price £19.95 Micro
Artn ST Supplier Paradise,
address as above

BBC B/Electron/ Master/Compact

Program Archard Type Arc-
ade Price £11.99 Micro
BBC/Electron Supplier Bug
Byte, address as above

Program The Monocash Col-
lection Type Utility Price
£19.95 Micro BBC B Sup-
plier Deedworth, The Old Fi-
shery Factory, 403 Gloucester
Crescent, London NW11 7DT

Program Rorflod Type Uti-
lity Price £37.99 Micro BBC

Master Compact Supplier
Classic Micro Supplies, 98
 Middlewich Road, Reddish,
 Northwich, Cheshire CW9
 7DA.

Program Action J Type Arcade
Adventure Price £3.95
 tape, £11.95 disc, £14.95 3½
 inch disc **Micro Acorn Electron,**
BBC B, BBC Master
Compact Supplier Superior,
 Regent House, Station Lane,
 Leeds LS2 1AB.

Buy Byte, address as above.



Program Phantoms 3
Utility Price £22.00
Micro BBC Master Compact
Supplier Classic Micro Sup-
plier, address as above

Program Phoenix For Inter-
Type Utility Price £22.00
Micro BBC Master Compact
Supplier Classic Micro Sup-
plier, address as above

Program Ancient Type Utility
Price £27.00
Master Compact, £25.00
Master 128
Micro Acorn Master Compact, Master 128
Supplier Classic Micro Supplies,
 address as above.

Commodore 64/128

Program Super Type Or-
phi Adventure Price £7.95
Micro Commodore 64
Supplier CIL, 5 Kings Yard,
 Garsins Road, Stamford,
 Lincolnshire.

Program Panther Type Ar-
cade Price £2.99
Micro Commodore 64/128
Supplier Environment USA,
 Meteoritic, address as
 above.

Perhaps an unbelieve-
 dly-packed shoot-'em-up
 affair here the sound-
 track, Panther nonetheless

provides a fair amount of en-
 tertainment for its budget
 price, and that the occupied
 in the parts where the alien
 fighters become impossibly
 fast and brutal for any ordinary
 fighter.

Panther presents a view of
 a reasonably colourful and de-
 tailed landscape shown from
 a three-quarter or angle.
 Your fighter skins slung,
 blasting waves of plasma and
 making findings to pick up
 survivors of the alien attack.
 In this respect, Panther is
 somewhat like Chaperlin.

The story line whirling be-
 yond you, and follow you
 until you slow down to sit
 back with them. There's a
 radar screen to warn you of
 incoming hostiles and various
 score displays, plus lots of
 different backgrounds includ-
 ing ones dotted with oil plat-
 forms which present difficult
 landing spots.

Leave tapping hot, and
 greeted by a sophisticated
 soundtrack which, unless you
 are dozing off, must be by
 David "Panic" Whitehead.

Program Oracle Type Ar-
cade Price £7.95
 tape, £12.95 disc **Micro Commodore**
64/128 Supplier CIL,
 5 Kings Yard, Garsins
 Road, Stamford, Lincolnshire.

Program Wizard of Africa
Type Graphic Adventure
Price £14.95
 disc **Micro Commodore 64/128**
Supplier Amsoft, Long Aisle,
 Convent Garden, London
 WC2.

Program Alien Type Strategy
Price £1.99
Micro Commodore 64
Supplier Bug Byte, address as above.

Program Flash Type Arcade
Price £2.99
Micro Commodore 64
Supplier Meteoritic, address as above.

Program Storm Type Ar-
cade Price £1.99
Micro Commodore 64
Supplier Meteoritic, address as above.

Program Day Jack's Million
Type Strategy/Adventure
Price £8.95
Micro Commodore 64/128
Supplier Amsoft, 58 Long Aisle,
 Convent Garden, London WC2E 6LN.

Program Judge Dredd Type
Arade Price £8.95
 tape, £14.95 disc **Micro Commodore**
64/128 Supplier Melbourne
 House, 60 High Street,
 Hampton Wick.

Kingspace upon Thames, Sur-
rey CT14DB.

It's a good 18 months since
 the idea of producing a
 computer game version of
 Judge Dredd was mooted,
 but less it is at last from
 Melbourne House.

Chosen is probably the best
 word to describe this imple-
 mentation, appropriately
 enough considering the origi-
 nal comic strips. Fantastic
 movie plays as you hurtle
 from location to location try-
 ing to prevent night crimes
 occurring in each level.

The solid graphics and well-
 animated characters (you, the
 haddies, rain and robotoids)
 do much to disguise the fact
 that this is dressed up plat-
 forms and ladders played at a
 hair-raising pace.

In keeping with his origins,
 the Judge occasionally has
 balloons coming out of his
 mouth, with some suitably
 tough-guy utterances (one of
 them looked rather rude, but
 I turned out to be only
 blam).

Judge Dredd fans will proba-
 bly enjoy this extension of
 the comic, but others it
 doesn't promise anything re-
 markably special.

Program Mr Ar King For 2
Type Arcade Price £8.95
Micro Commodore 64
Supplier Imagins, 4 Central
Street, Manchester, M2 6NS.

Judging by this effort,
 martial arts games
 must be nearly played
 out by now. KAOZ 2 adds
 little or nothing to other
 games such as Super Mar-
 ker, For 2, or indeed KAOZ 1.

Most disappointing is the
 general standard of design
 and animation of the char-
 acters. Most of them are
 blobby and unconvincing,
 and move with clunky jerks.
 The flying midges look like
 paper bats, for some reason.

There's a two-player op-
 tion - which here Lee Young
 can be played against the
 Space warriors such as In-
 tegrated Yaw-Pat (did you not
 - but the relatively limited
 number of lightning moves
 available, and the slowness of
 response, means that this is
 too imprecise to be any fun,
 and the thrill of looking for
 magic techniques and novelties
 to improve your fighting man-
 ner isn't quite enough.

Not even Martin Galante's
 teenage Yellow Magic Cy-
 berclass-shaped soundtrack
 can do much to salvage it.

Program Ancient Type Ar-
cade Price £1.99
Micro Commodore 16
Supplier Bug Byte, Victory House,
 Leicester Place, London
 WC2H 7HS.

As we all know, the word
 "ark" is the world's
 most intelligent and
 charming animal. Why, then,
 has it taken this long for
 someone to write a computer
 game starring the aforemen-
 tioned creature?

An easy one, Arkward the
 game is one of those pro-
 grams which looks awful, and
 is in fact deadly wonderful.
 The models (and yes, as the
 top of the screen, and you
 control the Arkward (and yes,
 it's spelled through the air and
 slapping up eggs looks up the
 points, and watching fast-
 moving ants going even more.

But beware; if the ants take
 your extended tongue you
 lose a life, and if you swallow
 a terribly warm back up front
 you'll choke on it. Soak
 around your tongue around
 the screen, and only by catch-
 ing a certain spider can you
 see off all your enemies.

MSX

Program On Type Arcade
Price £1.99
Micro MSX
Supplier Bug Byte, address
 as above.



Program Children Chase
Type Arcade Price £1.99
Micro MSX Supplier Bug
Byte, address as above.

continued on page 78

New Releases

► continued from page 75

Devoted to profit-minded, flashy effects or complex coding, *Apocalypse Now* has had as little success as the one chase becomes more and more frantic. Buy a copy for your favourite burning quipped.

Program *Storm Type Arcade* Price £1.99 Micro
MSB Supplier Microtronics, address as above



Spectrum

Program *Cop-Out Type Arcade* Price £8.95 Micro
Spectrum 48/128 Supplier MicroGen Ltd 15, The Millers, 1st Floor, Western Road, Stockport, Merseyside M12 5PW

Program *Phantom Type Arcade* Price £1.99 Micro
Spectrum 48K Supplier Code Masters, address as above

Program *Hemphill Type Arcade* Price £3.95 Micro
Spectrum 48K Supplier Code Masters, address as above

Program *Rogue Trooper Type Arcade* Price £3.95 Micro
Spectrum 48/128 Supplier Phoenix, 4 Little Essex Street, London WC2R 3LS

Grossing more is the name of the game in this stylish adaptation of 2000 AD's future war comic strip. Genetic information Rogue must fight his way through the hostile environment of his Earth, fighting off deadly Mobs and his own. Survival hopes who regard him as a menace. To the top left

is a counter giving a total map display, to the right a status area showing the amount of ammunition, number of medical packs, and number of weapons recovered.

The topics are the objects of Rogue's quest, needed to prove the involvement of a Scout general in the massacre of the genetic infantrymen, the right steps are laid down among minefields, wreckage, scattered buildings and hostile creatures, all depicted in an unusual, sketchy monochrome style. The end result looks quite unlike any other 3-D perspective scrolling landscape made shoot-'em-up strategy adventure on the market.

Programmed by Design Design and Gaffney to the original comic strip - the footloose building Hahn, Gunner and Engineer throw in the odd warning of danger or piece of advice - *Rogue Trooper* is so good you can almost taste the ChemClouds as you wade through the Scout Sea.

Program *The Ice Temple Type Arcade* Price £7.95 Micro
Spectrum 48/128 Supplier Bubble Bus, 87 High Street, Farnbridge, West Yorkshire WF10 1PQ

Program *Alien Type Strategy* Price £1.99 Micro
Spectrum 48K Supplier Big Byte, address as above

Hold your horses - this isn't *Alien*, the game of the target, due out sometime from Electronic Games, but a version of *Alien* which does not fit Big Byte's budget label.

When angrily mislabeled by Big Byte's colleague Mike Gains, *Alien* received a pretty mixed bag of reviews. The graphics were, well, let's say criticism, the game play considerably slow to learn with.

All this and still so, but there is actually a good game in here struggling to get out. Once the action gets going, with your characters spread out about the spaceship, wondering who the alien is going to get next becomes absorbing, and, surprisingly in a computer game, very suspenseful.

It's no good as all if you want flashing lights and rapid sound effects reflecting

from one multi-coloured screen to the next. If anything, it's more like one of those board games that you don't start playing unless it looks as though the rain is set in for the whole weekend.

Worth considering at £2.99



Program *They Sole A Million Type Strategy/Adventure* Price £8.95 Micro
Spectrum 48/128 Supplier MacLach, address as above

Program *Colosseum 4 Bridge Type Card Game Simulation* Price £11.95 Micro
Spectrum 48/128 Supplier COS, COS House, Bedford Road, Newcastle NE2 4AD

Program *Mailroom Type Arcade* Price £7.95 Micro
Spectrum 48/128 Supplier Gosau, 8 General Street, Manchester M2 5PQ

Program *The Press Type Adventure/Strategy* Price £8.95 Micro
Spectrum 48/128 Supplier Glash, 3 Park Crescent, Bury, South Gloucestershire GL9 9HQ

As the *Glash* story goes on

Having read *The Glash*, *The Glash*, and *The Glash*, we now have *The Press*.

The latest component in Glash's adventure-writing history is a text compressor which allows you to get far more text into your Glash adventures than was previously possible.

The package includes a compression program, called *Glash*, which allows you to add further text beyond the current upper memory limit.

By using these two utilities together - by subsequently expanding and compressing your text - Glash now you should be able to create 40K of text-only adventures.

Furthermore, *The Press* adds many of the exciting features of *The Glash*, as you may be able to drop the latest package from your shopping list.

Among these extras are an sound effects, two levels of key-locks, the ability to use alternative keyboards, picture on and picture off commands, and Ram load and save.

The manual is necessarily complex but well-written, and implementing these features should not be difficult, provided that you understand the *Glash* and *The Glash*.

There are one or two other books. There's a problem with basic keywords - *In, Out, Paper*, and so on - which must not be used anywhere in your adventure text.

The time taken by *The Press* can run from half an hour to ten hours, depending on the size of the database, and as whether you use Fast or Slow compression. Slow gives a better result, provided you can find something else to do for an hour.

And the obvious drawback is that having to implement three or four different programs has taken *The Glash* a long way from the original idea of having one-size-fits-all, general utility.

I hope that Glash will soon take the trouble to do an extensive re-write of the whole offer and produce one coherent program.

Then, well, the *Press* can only add to the continued success of *The Glash*. *Glash* and *The Glash* will no doubt have it.

Program *Gamma Type Arcade* Price £2.95 Micro
Spectrum 48/128 Supplier Microtronics, address as above

Program *Speed King 3 Type Simulation* Price £1.99 Micro
Spectrum 48/128 Supplier Microtronics, address as above

Program *The 17 Zone Type Adventure* Price £2.95 Micro
Spectrum 48/128 Supplier Complex Software, 30 Glaze Road, Norwich, Norfolk NR2 2BQ

FOR THE COMMODORE, AMSTRAD, BBC MICRO ELECTRON

REPTON 3

THE ULTIMATE CHALLENGE



The Screen Editor



The Character Editor

Being rescued
by a monsterThe final boss
is defeatedThe character jumps
over the lavaChoosing a
Golden Chest

Are you ready for the ultimate challenge?

Our prized Repton games are increasingly established as a startlingly new concept: a game requiring players to complete its intricate level design, and clever logic programming jobs in strategic puzzle, highly creative thinking, results from cleverly constructed map-making, really what designing the ultimate challenge and rousing point. This is an astounding game featuring new bright, BBC Micro adventure, articulated the final (last) message.

Just Christmas now the release of Repton 3, longer and much more challenging than before. Accompanying technical tips, bonus, with "Repton" (it better than anything we played on the BBC Micro/Amiga/Atari).

Now, completely rewritten and improved for the Commodore, Amstrad, BBC Micro and Repton, we provide present Repton 3, for the first time, a character designer (it included) that gives you a choice of 16 different characters. This one if you can find that newly designed screen. Another innovation is the character designer which enables you to design your own monsters, rocks, eggs, plants, flowers... only if all of the games characters can be redesigned as you wish.

Repton 3 is much longer than its predecessors... it has 16 fascinating screens and players who are skilled enough to complete them will earn your prize competition described below. All the famous Repton characters have been replaced, together with various new features, a creeping poisonous fungus which grows when standing over, time controls and time obstacles for pushes in the 4th dimension, and golden chests (it will disappear) rewards for your endeavours. Can you complete Repton 3?

PRIZE COMPETITION

If you complete Repton 3, you can enter the competition. Prizes include over £200 in cash, with travel, bugs, badges and poster (worth £100).

COMMODORE 64/65 • AMSTRAD CPC 464/66/86/128
BBC MICRO 5.0 • WHITE LABEL COMPAT • EUROCOM

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Amstrad 464/66	£20.00	Amstrad Compact Disc	£25.00
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The copyright question

The perennial question about software copyright, and the right of ownership of a buyer to copy software, has resurfaced in our Letters page (see page 14 this week).

The debate, sadly, seems endless with the same old arguments being trotted out on both sides.

There are some of us (well, me at any rate), who believe and still believe that software publishers had adequate recourse to the law without further tinkering with the Copyright Act and other legislation.

Cute, simply, unless the publisher specifically says anything in the contract, you can't copy software.

But so far as I'm aware, nobody in the world has been prosecuted for copying software, provided that the copy was for their own use. Indeed, within both the letter and the spirit of the law, many more people are liable for prosecution than are actually being caught.

The law is being applied to catch the professional pirates. Which is not to say that because you're not selling hundreds of copies down the market or Saturday, you can give copies to your friends, reserve other copies in return, and everything's fine.

Arguments about security back-ups of games cassettes just don't wash. I've been using cassette software for more than four years and never had a tape go wrong.

Popular Computing Monthly

doesn't accept advertisements for tape-to-tape copiers. We simply don't see a legitimate use for them.

Disk-based software is a different matter. Computer discs are the most mischievous critters in the known universe. You can walk on them, stand a magnet on them, pour coffee on them, and often they'll continue to work perfectly. Finally, you can destroy one with a steam-iron or a hand saw.

But other arguments apply. It doesn't seem unreasonable for a software company to copy-protect a games disc provided that it is prepared to replace that disc if something goes wrong. Going without a game for a week or so is no great hardship.

But professional software is different. If your livelihood depends on your having access to a program and its data, you would be foolish to buy copy-protected software. If a disc fails, it's essential that you have another to hand — right now.

The catch here for software companies is that business users are among the worst software copiers. Firms which buy one copy of WordStar and then make 20 copies for their employees are commonplace. It's not unknown for a firm to have 27 copies of Wordstar, never having bought an original.

The dilemma with business software is that the users have a genuine grievance if they can't make back-ups, but the software houses have

a fair case for preventing it because they're losing thousands of sales.

My suggested answer to this is to buy only unprotected software — and don't give away copies. Or accept them. Of course, many computer users will continue to trade copied software.

But spare us the well-worn arguments, especially the one about high prices. Defending piracy on the grounds that the software costs too much is like saying it's okay to steal a Rolls-Royce because it costs more than your Ford Escort.

That's that, whether you use a printer or a bit-copier.

The last word on the subject (quite literally) is to repeat: play fair by the software companies. Accepting a copy from a friend to check out a program doesn't hurt anyone in itself.

If you like the software, go out and buy it. That way the copy makes a sale and everyone's happy. If you don't like it, throw it away or record over it. No harm done.

But habitually using copies instead of buying the software is stealing. Stealing from the software house, and stealing from the programmer.

But if you're going to be a thief, be an honest one. No justifications, no waffle about high prices, no gleaming to your friends about "cracking the code".

Just tell them you stole software.

Peter Worlock

NEXT WEEK

SPECIAL SUPPLEMENT

Buyers' guide to hardware

If you're hoping to get a computer for Christmas, or planning to treat yourself, then you can't afford to miss Popular's Hardware Buyers' Guide.

There'll be a comprehensive guide to the Big Ten computers on the market — the Plus 2s, the CPCs, the PCWs, Commodores, Ataris and Acorns.

If you're not so interested in the mainstream home PCs, try this guide to games consoles. Or, if you want something more up-market, we look at the present boom in cheap IBM PC compatibles. And if money's a bit tight, we've got a survey of some of the micro bargains around at the moment.

Hardware

Amstrad isn't the only company with a newly launched PC compatible. Tandy's 1000X comes into exactly the same category.

Movie Quiz

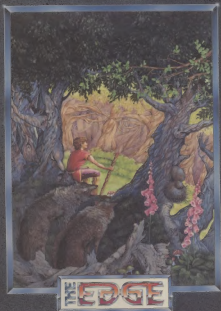
We name names and cite the winners of the Spectrum Plus 2s, the Star printers, and the Massmart's joystick in our Great Autumn Movie Quiz.

Hackers



Fairlight

Chronicles of the Land of Fairlight
2. Trail of Darkness



EDGE

The Epic continues...

Fairlight 1, The Land of the Lost, inspired a truly extraordinary book series. Now in the second part of the epic, a new line follows on of the long-term's masterpiece called the "Unfinished". Trail of the Dark is probably the first time T.H.M. appears as a new character for the first time, and history more than a lot of development and improvement to the revolutionary "Hillside" series.

AMSTRAD £8.95
ZX SPECTRUM £7.95
COMMODORE 64 £8.95

Yie Ar KUNG FU II



...the name
of the game

The officially endorsed game by
Konami.

Sequel to the hugely successful Kung Fu simulation.

Eight more deadly opponents to combat as you develop your karate skills and advance to become a black-belt master.

Authentic fighting moves with 4 different locations create an outstanding and realistic atmosphere.

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